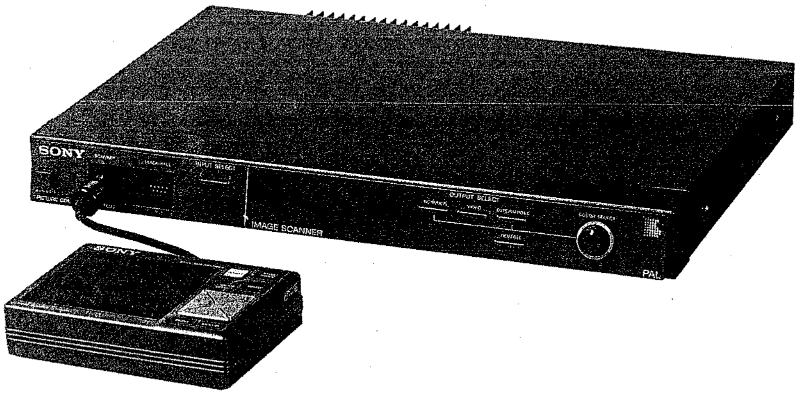
XV-T600

SERVICE MANUAL

AEP Model
UK Model
AUS Model



SPECIFICATIONS

Front panel

Screen output selectors	SCANNER/VIDEO/SUPERIMPOSE, REVERSE
Color selector	7 colors
SCANNER connector	13-pin (for supplied scanner)
TRACK BALL connector	9-pin (for track-ball)

Rear panel

Video inputs and outputs	Phono jacks (2 inputs, 2 outputs) 1Vp-p, 75 ohms, unbalanced, sync negative
Audio inputs	Phono jacks (2 stereo inputs) Input level: −10dBs (0dBs=0.775Vrms) Input impedance: more than 47 kilohms
Audio outputs	Phono jacks (2 stereo outputs, 1 monaural output) Output level: −10dBs (at load impedance 47 kilohms) Output impedance: Less than 10 kilohms
DC output	Special minijack (for RFU adaptor), DC 5V
TAPE jack	DIN connector (for data recorder) with remote jack

Scanner

Scanning resolution	Approx. 5 dots/mm
Scanning area (ver. × hor.)	Approx. 60mm × 80mm
Scanning time	Approx. 18 sec./screen
Picture memory	416 × 256 picture elements (for 1 screen)
Picture editing function	PAINT: 15 colors DRAW: thin, thick, airbrush Magnification: 1 ×, 2 ×, 4 × Scanning: normal, overlay Data recording: save, load, verify

— Continued on next page —

MICROFILM

PICTURE COMPUTER

SONY®

ACC

General

Power requirements	For the models available in the United Kingdom and Australia: AC 240 V, 50 Hz For the model available in other countries: AC 220V, 50 Hz
Power consumption	23W (when using scanner and track-ball)
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	−20°C to 60°C (−4°F to 140°F)
Dimensions (w/h/d)	Main body: Approx. 430 × 55 × 325 mm ($17 \times 2\frac{1}{4} \times 12\frac{7}{8}$ in.) Scanner: Approx. 145 × 36 × 99 mm ($5\frac{3}{4} \times 1\frac{1}{2} \times 4$ in.)
Weight	Main body: Approx. 4.2 kg (8.8 lb) Scanner: Approx. 410 g (14.5 oz)
Supplied accessory	Image scanner (1)

Optional accessories
- Track-ball GB-6
- Data recorder SDC-600
- Video Multi Color Corrector XV-C700
- RFU adaptor RFU-88E
- Connection cords
- VMC-2121E
- VMC-2106S
- VMC-604S/605S
- VMC-2104MS
- VMC-602MS/603MS
- HBK-50 9-pin↔2 minis and special mini: for data recorder

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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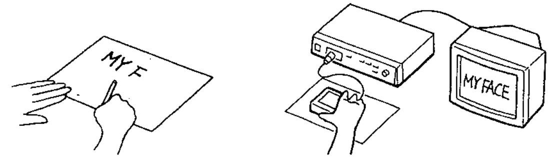
SECTION 1
GENERAL

1-1. ABOUT THE XV-T600 PICTURE COMPUTER

A-1



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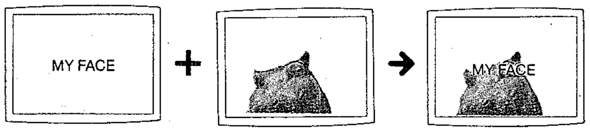

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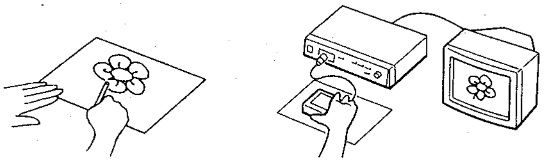

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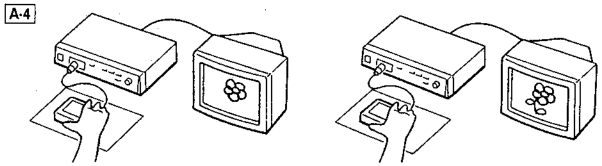

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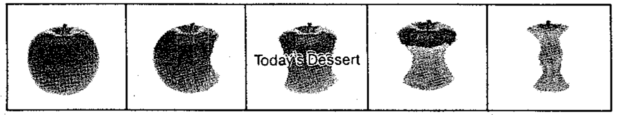

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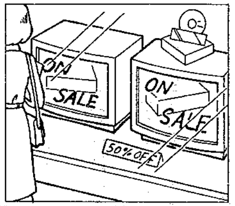

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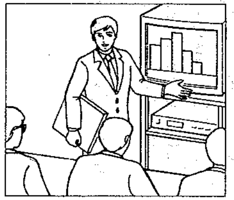

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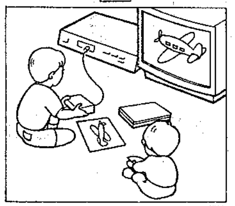

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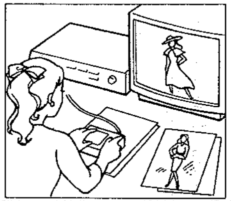
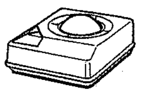


A-10



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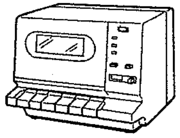

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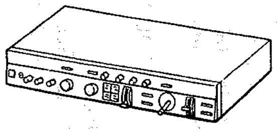


With the XV-T600 Picture Computer, you can scan your own written or printed material, display it on the screen A-1, and overlap it with the scenes from your video tapes A-2.
After scanning the material A-3, you can color it and also draw lines A-4.
Use it for editing tapes shot with a video camera A-5, or for displays A-6, presentations A-7, education A-8, design simulation A-9, etc.

Using a track-ball A-10, you can draw lines easily. (page 10)
Using a data recorder A-11, you can save or load the screen data. (page 12)
Using the XV-C700 Video Multi Color Corrector (optional) A-12, you can change screen colors, control fade-in or fade-out, wipe-in or wipe-out.

Trouble Checks

No picture, no sound:
- The power is not turned on.
- The connections are not made correctly. (page 6)
- The INPUT SELECT button is not pressed correctly. (page 7)
- The video input or the video channel is not selected on the TV.

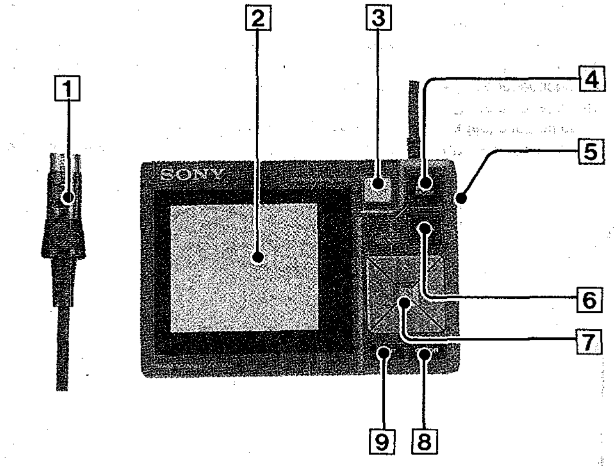
The source is not scanned.
- The source is too light. (page 7)
- The source is printed in too small letters.
- The source is red.

Some small areas are not painted.
- The source is printed in too small letters. (page 9)

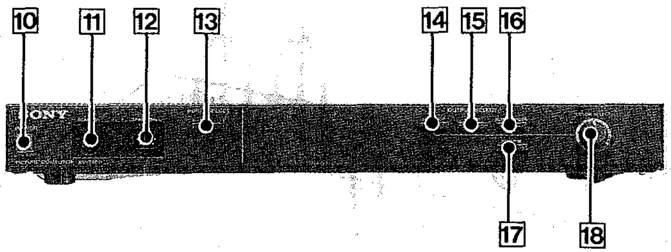
The menu will not appear.
- page 11

1-2. LOCATION AND FUNCTION OF CONTROLS

B-1



B-2



B-3

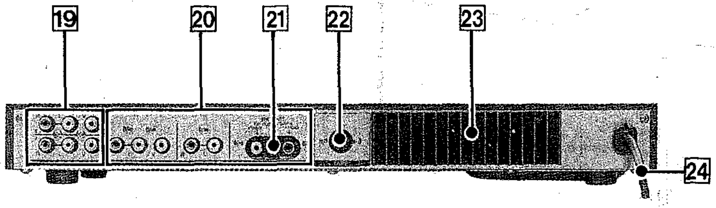


Image Scanner B-1

1 Connecting plug
To disconnect, press the button while pulling the plug.

2 Scanner window
The area seen in here will be scanned.

3 START button
Use it for scanning, painting, or recording on data recorders.

4 STOP/MODE button

5 CONTRAST switch
Adjusts the color density of the source when scanning.

6 DRAW button
Use it when drawing lines.

7 Cursor keys

8 COLOR button
Use it when choosing colors.

9 PAINT button

Front Panel B-2

10 POWER switch

11 SCANNER connector
Connects the supplied image scanner.

12 TRACK BALL connector
Connects track-ball.

13 INPUT SELECT button
Selects the source connected to the rear input jacks.

14 SCANNER button
Press to view scanned picture.

15 VIDEO button
Press to view video picture.

16 SUPERIMPOSE button
Press to view scanned picture superimposed on video picture.

17 REVERSE button

18 COLOR SELECT knob

Rear Panel B-3

19 INPUT jacks
Connect VCR or video camera recorder (for playback), etc.

20 OUTPUT jacks
Connect TV monitor, VCR (for recording), audio equipment, etc.

21 Power output jack for RFU adaptor

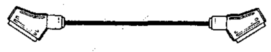
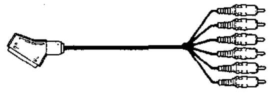
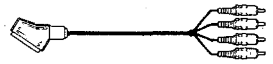
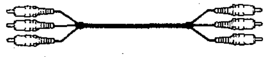
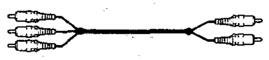
22 TAPE jack
Connects data recorder (optional).

23 Radiator

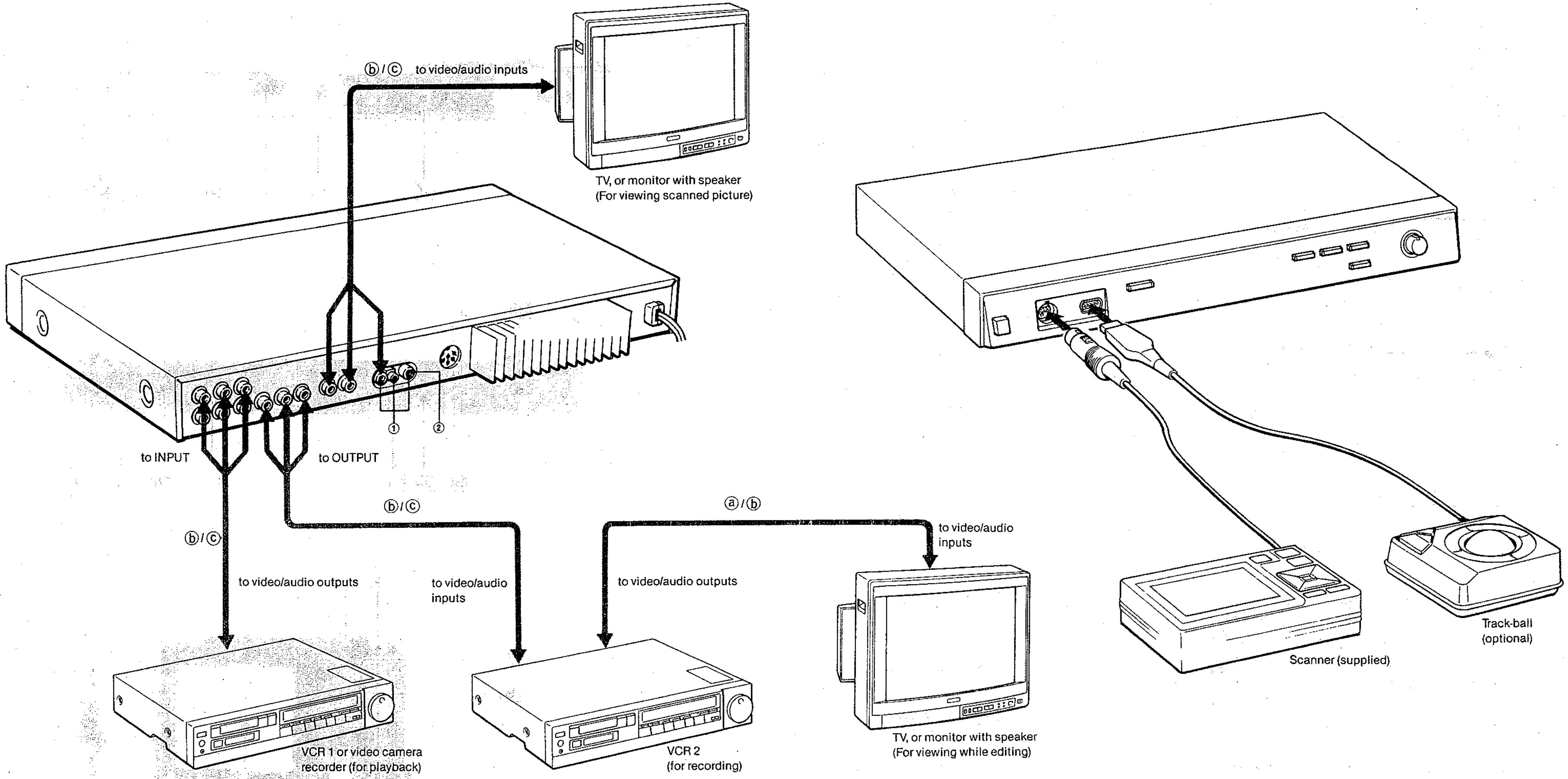
24 Power cord (mains lead)

B-4
For the connections on page 8, use the optional connecting cords.
ⓐ Video and audio connection
ⓑ Video and audio (stereo) connection
ⓒ Video and audio (monaural) connection

B-4

ⓐ	VMC-2121CE	
ⓑ	VMC-2106S	
	VMC-604S/ -605S	
ⓒ	VMC-2104MS	
	VMC-602MS/ -603MS	

1-3. CONNECTIONS


ⓑ/ⓒ to video/audio inputs
TV, or monitor with speaker
(For viewing scanned picture)
①
②
to INPUT
to OUTPUT
ⓑ/ⓒ
ⓑ/ⓒ
ⓐ/ⓑ
to video/audio outputs
to video/audio inputs
to video/audio outputs
to video/audio inputs
VCR 1 or video camera recorder (for playback)
VCR 2
(for recording)
TV, or monitor with speaker
(For viewing while editing)
Scanner (supplied)
Track-ball
(optional)

Notes on connections

- Before making the connections, turn the power off on all equipment.
- Sony video and audio plugs and jacks are colored yellow, red, and white. Match the colors when connecting.
- Insert the plugs fully into the jacks. Incomplete connections may cause noise.
- To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- To avoid interference between units, turn the power off on the equipment not in use.
- If the units are too close to the TV, their magnetism may affect each other and distort the picture on the TV screen. Place them at an appropriate distance from each other.
- The connections may differ in some units. Refer to the instruction manual of each product.

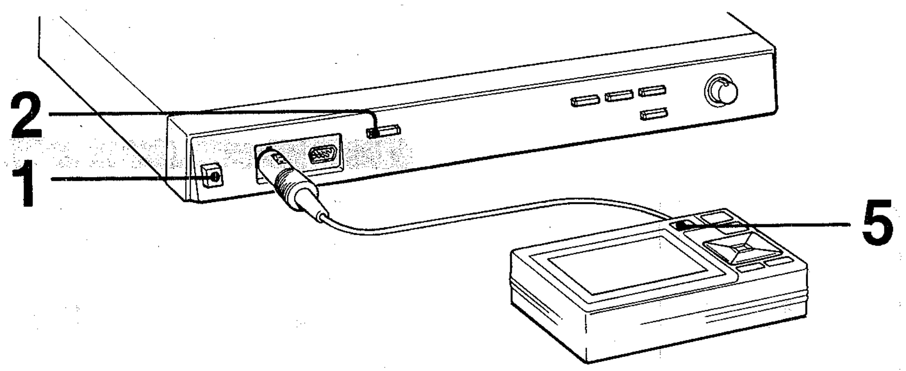
Connection with a data recorder is on page 12.

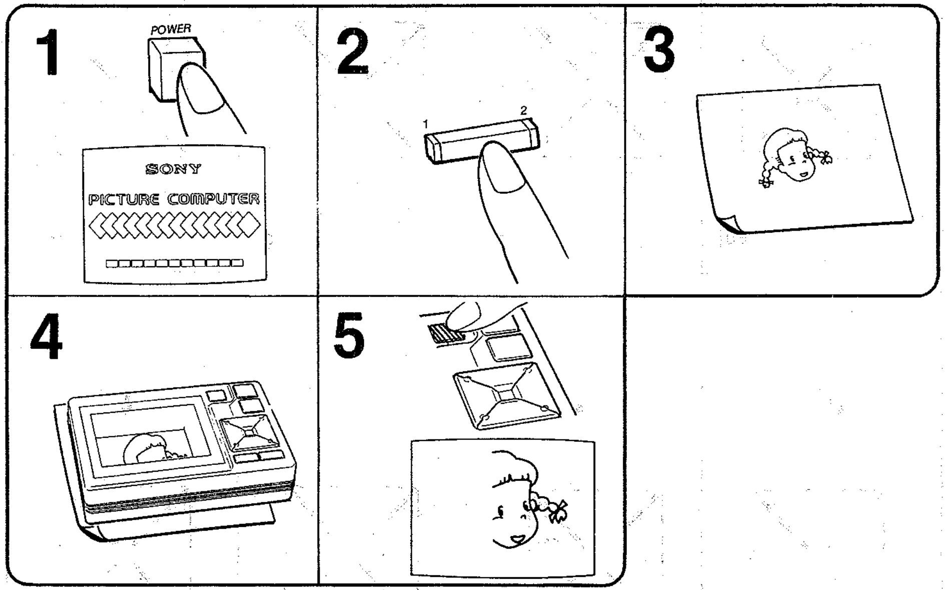
① When connecting with TV without video/audio inputs, put on the RFU-88E adaptor (optional) and plug it here.
② When connecting with monaural TV, connect the audio plug here.

Making an Original Picture

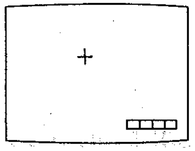
1-4. SCANNING

C-1

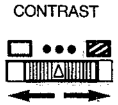




C-2



C-3



Check whether you have finished the connections.

The printed material that you scan may be copyrighted. Unauthorized duplication of such material may be contrary to the provisions of the copyright laws.

1 Turn the power on.
(A title screen will appear on the TV monitor.)

2 Switch the INPUT SELECT button to 1.
(If your VCR is connected to INPUT jack 2, then switch it to 2.)

3 Prepare your sources for scanning.

4 Place the scanner directly on the surface of the source.
(The part under the window will be scanned.)

5 Press the START button of the scanner.
The scanned picture will appear gradually.

- To stop during scanning, press the STOP/MODE button. Press the START button to start over again.

Note

- The screen may not be centered accurately on some monitors.
- The frame will not appear on the screen when superimposed.

- During step 1, you can go to the next step without waiting for the title screen to completely appear, by pressing the STOP/MODE button.
- When the scanner is used for a long time, small drops of oil may appear inside the scanner window, but they will have no effect on the picture.

Screen display C-2

A cursor and a menu will appear on the screen. They will be needed for the operations on pages 9, 10 (See next page for details).
To erase the cursor and menu from the screen, see page 11.

Notes on the sources for scanning

- Scanning should be done on a flat surface. The source itself should be flat as well.
- The best source for this machine ia a white source written in black thick lines
- When using sources with small letters (such as newspaper articles), or ones with light colors or ones with less contrast, adjust the contrast with the CONTRAST switch C-3 on the right side of the scanner. Note that there is a limit on the adjustment with these switches.
- Color photographs cannot be scanned clearly.
- Red sources cannot be scanned.
- Sources covered with transparent sheets or sources with colored background may not be scanned.
- Color sources will be scanned in black and white.
- Gray sources will be scanned in either black or white, depending on their darkness.
- Slanted lines and curved lines may appear on the screen with rough edges.

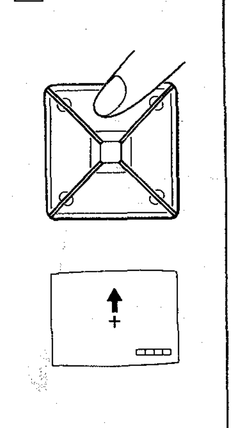
Colors will appear as follows when the REVERSE button or SCANNER, SUPERIMPOSE buttons are pressed.

	SCANNER button pressed		SUPERIMPOSE button pressed	
REVERSE button scanned color	unpressed	pressed	unpressed	pressed
black	color chosen by COLOR SELECT knob	black	color chosen by COLOR SELECT knob	transparent (video picture)
white	white	color chosen by COLOR SELECT knob	transparent (video picture)	color chosen by COLOR SELECT knob

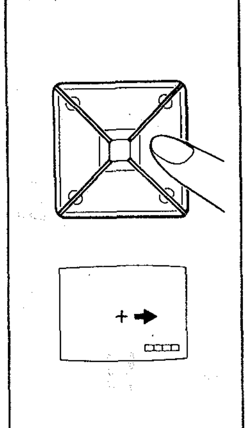
Making an Original Picture

1-5. SCANNING (CONTINUED)

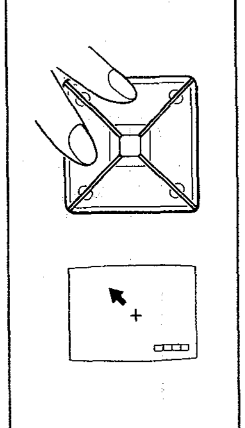
D-1



D-3



D-5



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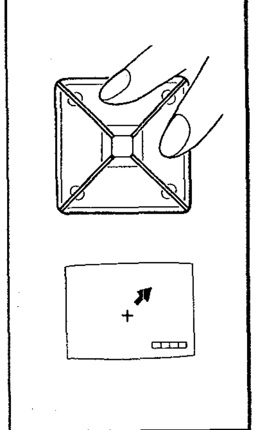
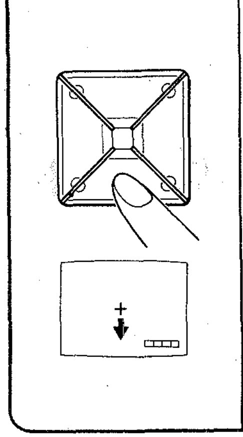


D-2



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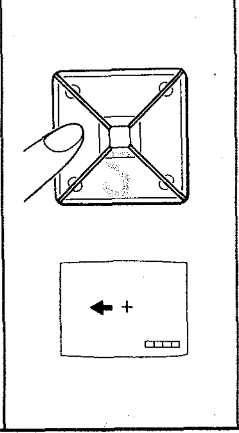

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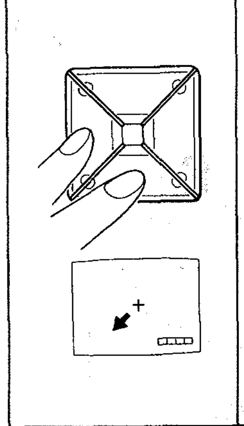
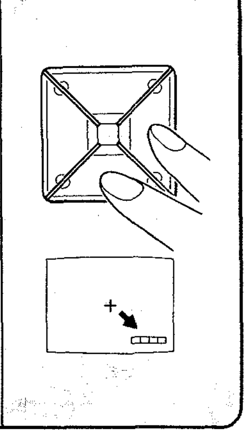


D-8

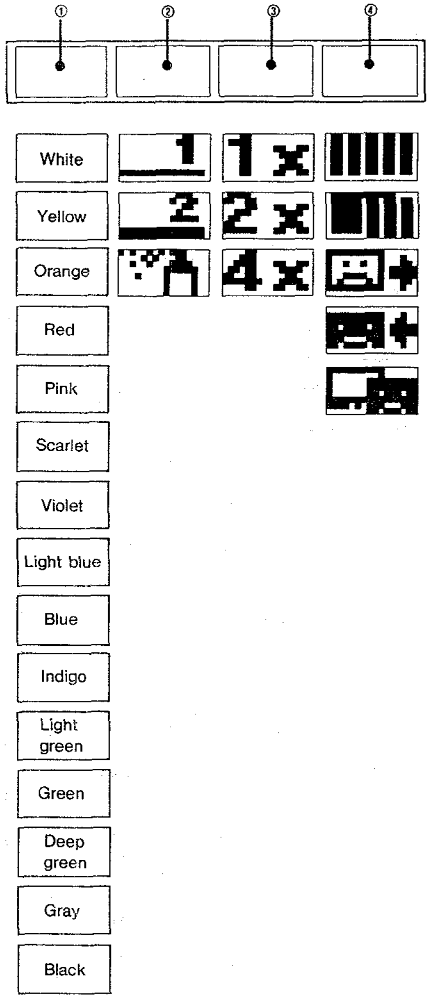


ABOUT THE CURSOR AND MENU

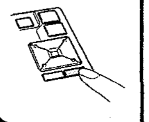
The Cursor
To move the cursor (+), press the cursor keys. The cursor will move in 8 different directions depending on the key that is pressed.

Up	D-1	Right	D-3	Upper left	D-5	Upper right	D-7
Down	D-2	Left	D-4	Lower left	D-6	Lower right	D-8

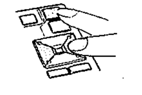
D-9


①
②
③
④
White
Yellow
Orange
Red
Pink
Scarlet
Violet
Light blue
Blue
Indigo
Light green
Green
Deep green
Gray
Black
1
2
1 x
2 x
4 x

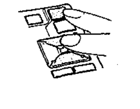
D-10



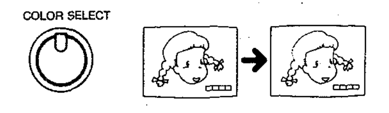
D-11



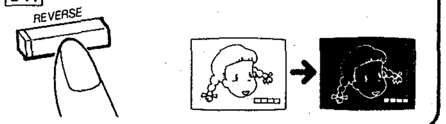
D-12



D-13


COLOR SELECT

D-14



The Menu D-9
In the menu, the operative functions will be displayed.
Block ①: To choose one of the 15 colors to be painted. (pages 9, 10)
Block ②: To choose one of the 3 types of lines to be drawn. (page 8)
Block ③: To choose the degree of magnification of the source. (page 9)
Block ④: To choose the mode of operation. Scanning (page 7), Overlaying (page 10), Saving, Verifying, Loading (page 11)

Operation

1 To choose the color in block ①, press the COLOR button of the scanner. D-10

2 When using blocks ②-④, first, press the right cursor key while pressing the STOP/MODE button and choose either block ②, ③, or ④ D-11. The chosen block will turn light blue.
Then, press the upper cursor key while pressing the STOP/MODE button and change the mode in the menu. D-12

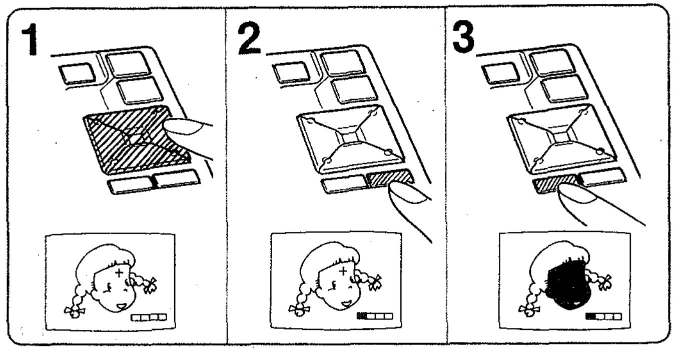
About the COLOR SELECT knob D-13
You can change the colors of the scanned data at once by turning this knob. There are 7 colors to choose from.

About the REVERSE button D-14
The scanned picture and the background can be reversed by pressing this button.

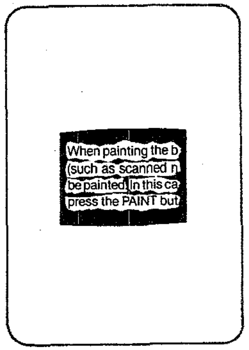
Making an Original Picture

1-6. PRINTING

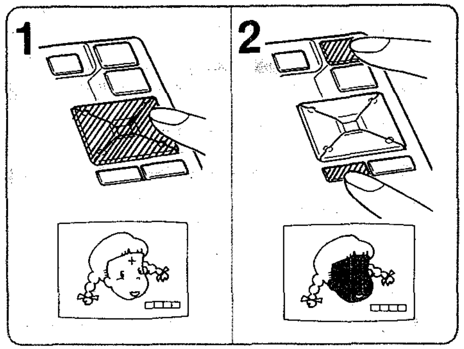
E-1



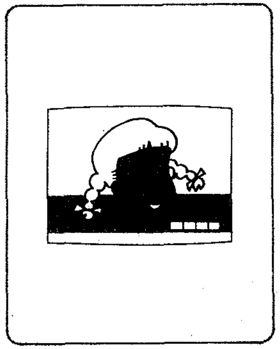
E-2



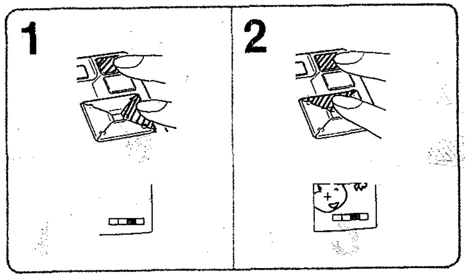
E-3



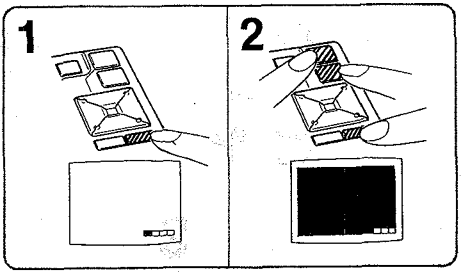
E-4



E-5



E-6



The scanned picture can be painted in 15 different colors. Set the COLOR SELECT knob to black and follow the steps below.

PAINTING SELECTED AREAS E-1

1 Press the cursor key and move the cursor to the area to be painted.
- The area must be completely enclosed with an unbroken line.
- If the cursor bumps into the menu, the menu will move to the upper right or lower right of the screen.

2 Press the COLOR button and choose the color.
(The chosen color will be displayed.)

3 Press the PAINT button.

- To stop during painting, press the STOP/MODE button.
- Lines can be painted in the same way as areas.
- Colors may be changed afterwards by repeating steps 1-3.

Notes
- Once the colors are painted, they will not be affected by the COLOR SELECT knob nor the REVERSE button. (Except for black and white.)
- If the scanned picture is painted the same color as the color you have chosen with the COLOR SELECT knob, the picture and the menu will be indistinguishable. In such case, turn the knob to black, paint your picture with other colors, and then turn the knob back again.
- When painting the background of sources with small letters (such as scanned newspaper articles), some areas may not be painted. In this case, move the cursor to those areas and press the PAINT button; or paint the background first (see OVERLAYING) and then scan. E-2
- If you paint the area with the same color as the background, the picture will disappear. Therefore, paint it with a different color.

TRIAL PAINTING E-3
When painting areas, the colors may leak out if the area is not completely enclosed. By trial painting first, you can check this beforehand.

1 Move the cursor to the area to be trial painted.

2 Press the PAINT button while pressing the STOP/MODE button.
(The area will be painted in reddish-brown.)

3 A. **If the color spreads to other areas** E-4, choose white with the COLOR button, press the PAINT button and close the area (See DRAWING LINES). Then repeat the trial painting again.
B. **If the color does not spread to other areas** and you want to paint the trial painted area with a different color, press the color button and choose the color, and then press the PAINT button.

Note
Once you have done the trial painting, you cannot go to the next operation until you press the PAINT button.

PAINTING SMALL AREAS (Magnifying the screen) E-5

1 Press the right cursor key while pressing the STOP/MODE button, and choose the 3rd block on the menu.

2 Press the upper cursor key while pressing the STOP/MODE button, and change the mode to **2×** (magnified 2 times) or **4×** (magnified 4 times).

3 Repeat steps 1 – 3 in PAINTING SELECTED AREAS.
(The mode will return to normal when the painting begins.)

- During 2× or 4× modes, you can move to another area by moving the cursor to the edge of the screen.

PAINTING THE WHOLE SCREEN E-6

1 Press the COLOR button of the scanner and choose the color.

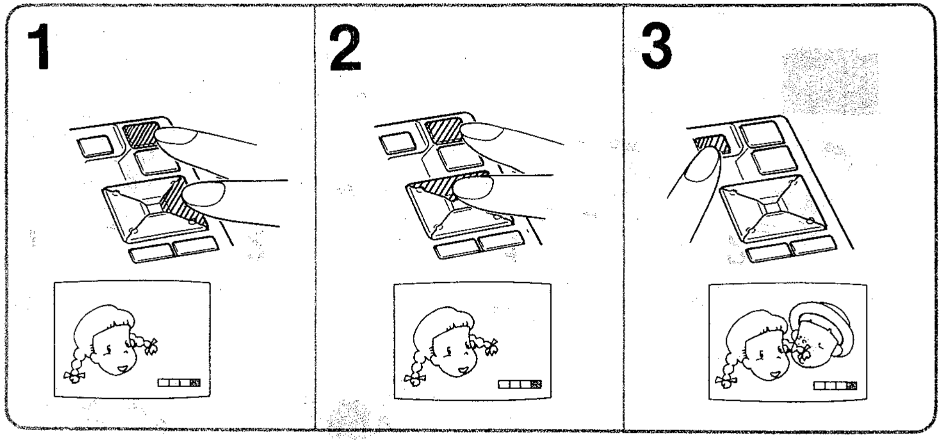
2 Press the DRAW button and the COLOR button while pressing the STOP/MODE button.

- If a picture was scanned before painting the whole screen, it will disappear. Therefore, you must scan after painting the screen.
When scanning over the painted background, change the mode to ▮Ⅲ (See OVERLAYING).

Making an Original Picture

1-7. OVERLAYING

F-1



You can scan another source over the original source.

1 Press the right cursor key while pressing the STOP/MODE button, and choose the 4th block on the menu.
(The chosen block will turn light blue.)

2 Press the upper cursor key while pressing the STOP/MODE button and change the mode to ▮.

3 Put the scanner on your second source and press the START button.

- If you want to paint your second source with a different color, paint your first source first, and then overlay.
- To return to normal scanning, change the mode in step 2 to ▮.

Making an Original Picture

1-8. DRAWING LINES

DRAWING STRAIGHT LINES G-1

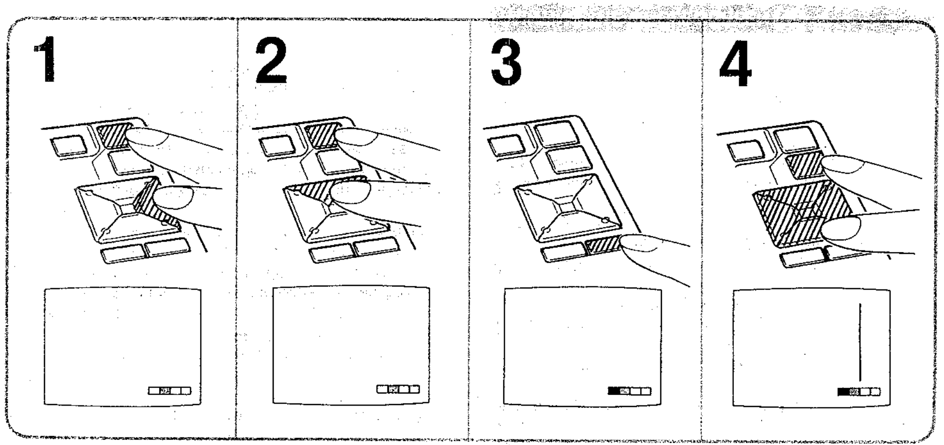
1 Press the right cursor key while pressing the STOP/MODE button, and choose the 2nd block on the menu.

2 Press the upper cursor key while pressing the STOP/MODE button, and choose the type of line to draw.
(1: thin line, 2: thick line, ▨: airbrush
In the airbrush mode, the line will be drawn as if sprayed.)

3 Press the COLOR button and choose the color of the line.

4 Press the cursor keys while pressing the DRAW button.
(See page 10 for the direction of the line.)

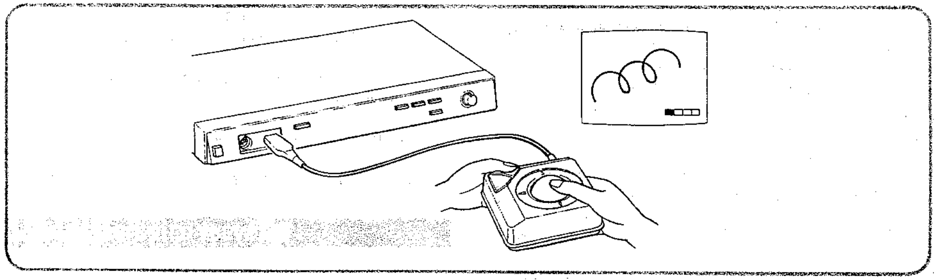
G-1



DRAWING CURVED LINES G-2

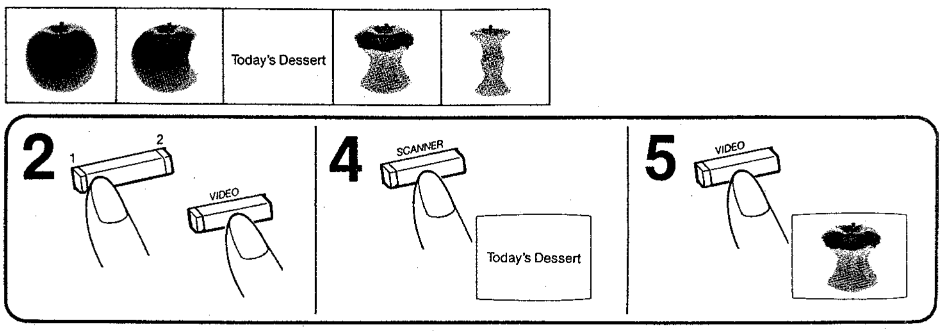
Use a track-ball.

G-2

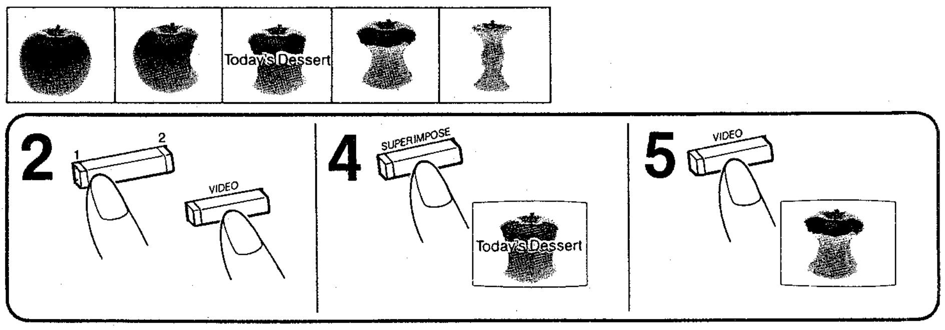


1-9. EDITING VIDEO TAPE

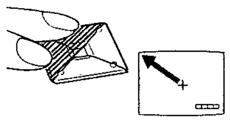
H-1



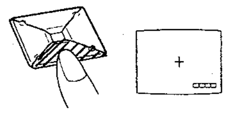
H-2



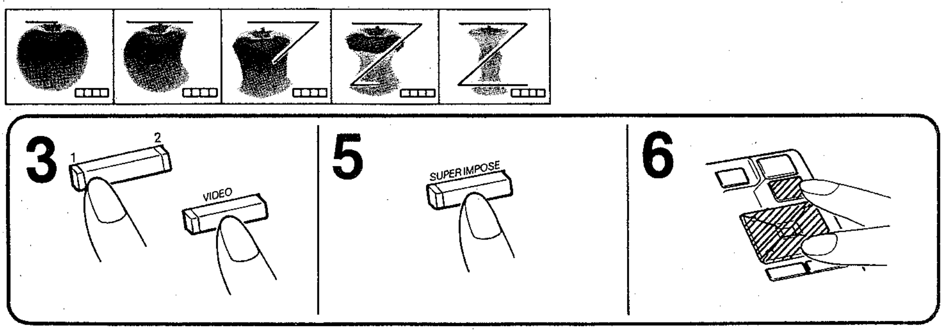
H-3



H-4



H-5



INSERTING SCANNED PICTURE BETWEEN VIDEO PICTURE H-1

1 Set VCR 1 to the playback pause mode and VCR 2 to the recording pause mode.

2 Switch the INPUT SELECT button to 1, and press the VIDEO button.

3 Release the pause modes on the VCRs.

4 Press the SCANNER button whenever you want to insert the scanned picture and simultaneously set VCR 1 to the pause mode.

5 To return to the video picture, release the pause mode on VCR 1 and simultaneously press the VIDEO button.

- To view the edited picture, playback the tape in VCR 2.

Note
If you press the OUTPUT SELECT buttons during recording, the picture may become disordered. In such case, set VCR 2 to the pause mode, and then press the buttons.

SUPERIMPOSING SCANNED PICTURE ON VIDEO PICTURE H-2

1 Set VCR 1 to the playback pause mode and VCR 2 to the recording pause mode.

2 Switch the INPUT SELECT button to 1, and press the VIDEO button.

3 Release the pause modes on the VCRs.

4 Press the SUPERIMPOSE button whenever you want to superimpose the scanned picture.

5 To return to the video picture, press the VIDEO button.

To erase the cursor and the menu from the screen H-3
Press the upper cursor key and the left cursor key together and move the cursor to the upper left hand corner. To make them appear again, press the lower cursor key. H-4

Note
- When you use each of the picture search, the still or the skip scan function, the scanned picture may be disturbed.

DRAWING LINES ON THE VIDEO PICTURE H-5

1 Prepare the scanner for drawing (page 10).

2 Set VCR 1 to the playback pause mode and VCR 2 to the recording pause mode.

3 Switch the INPUT SELECT button to 1, and press the VIDEO button.

4 Release the pause modes on the VCRs.

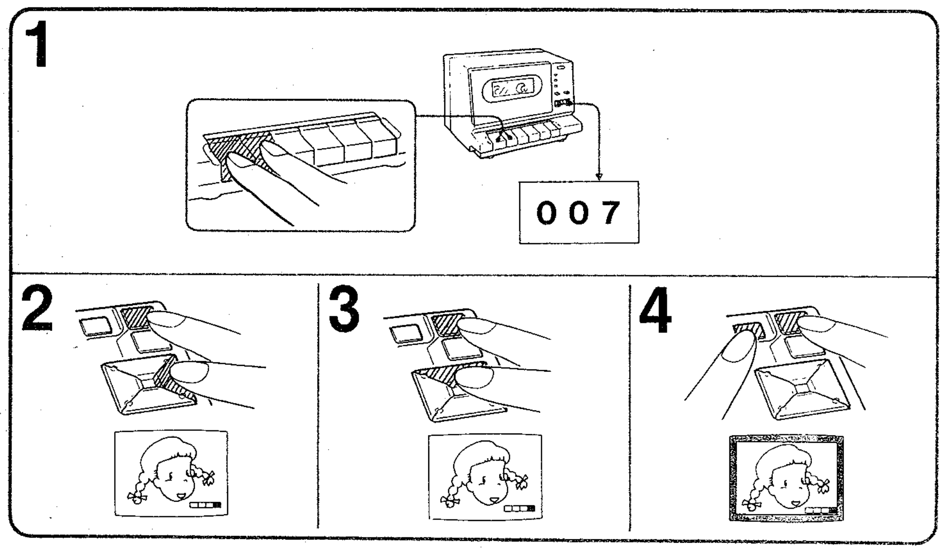
5 Press the SUPERIMPOSE button whenever you want to draw lines.

6 Press the cursor keys on the scanner while pressing the DRAW button.

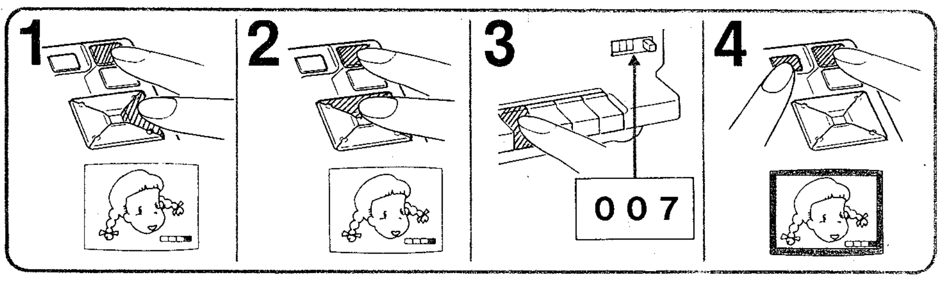
* During this operation, the cursor and the menu will remain on the screen.

1-10. SAVING AND LOADING THE SCREEN DATA

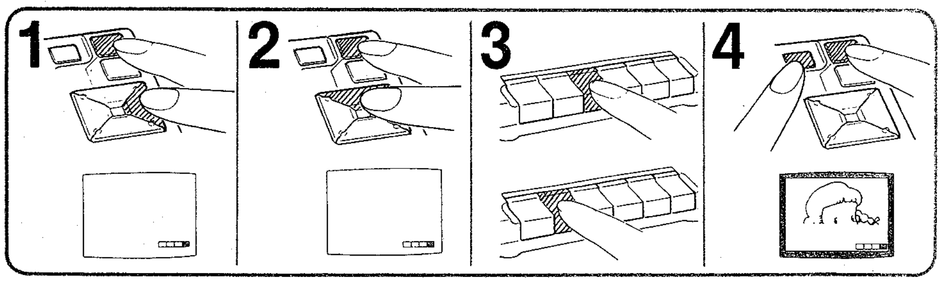
I-1



I-2

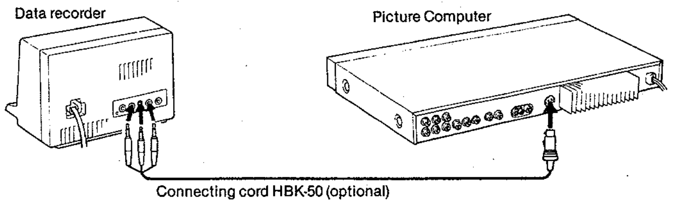


I-3



Using a data recorder, you can save the screen data.

Connection



Set the COLOR SELECT knob to the black position and follow the steps below.

SAVING I-1

1 Press the SAVE and LOAD buttons on the data recorder. Write down the number on the tape counter.

2 Press the right cursor key while pressing the STOP/MODE button and choose the 4th block on the menu.

3 Press the upper cursor key while pressing the STOP/MODE button and change the mode to ▨ (save).

4 Press the START button while pressing the STOP/MODE button.
(The data recorder will automatically start the saving. The fourth block will blink.)

- When the saving is over (4 minutes and 20 seconds later), the blinking will stop.
The data recorder will pause automatically.
- If you have interrupted the saving, rewind the tape to the number on the counter you have written down, and repeat steps 1 – 4.
- When saving several screens in succession, repeat steps 1 – 4 for each screen.
- Press the ■≜ button on the data recorder when finished.

VERIFYING I-2

Chek whether the screen data is correctly saved.

1 Press the right cursor key while pressing the STOP/MODE button and choose the 4th block on the menu.

2 Press the upper cursor key while pressing the STOP/MODE button and change the mode to ▨ (verify).

3 Rewind the tape to the starting point (the number you have written down in step 1 above) of the screen data and press the LOAD button.

4 Press the START button while pressing the STOP/MODE button.
(The fourth block will blink.)

- When the verifying is over (4 minutes and 20 seconds later), the blinking will stop if the data is correctly saved. The block will turn red and stop if the data is not correctly saved.
- Press the ■≜ button of the data recorder when finished.

LOADING I-3

To take out the saved data from the cassette tape and load it into the screen, follow the steps below.

1 Press the right cursor key while pressing the STOP/MODE button and choose the 4th block on the menu.

2 Press the upper cursor key while pressing the STOP/MODE button and change the mode to ▨ (load).

3 Rewind the tape to the starting point of the screen data and press the LOAD button.

4 Press the START button while pressing the STOP/MODE button.
(The fourth block will blink and the picture will begin to appear.)

- When the loading is over, the blinking will stop. The data recorder will stop automatically.
- To stop during loading, press the STOP/MODE button.
- When finished, press the ■≜ button on the data recorder.

Note
- During the saving, verifying, and loading operations, press the STOP/MODE button and the START button slowly. Quick pressing may cause a temporary malfunction. If it does, press the STOP/MODE button and the START button to return to normal operation.
- During saving, verifying, and loading, the menu will move to the upper right hand corner of the screen when the operation is half-way through.

When using a radio cassette recorder or a cassette deck instead of a data recorder, the recording buttons will not function automatically.

instead of a data recorder, the recording buttons will not function automatically.

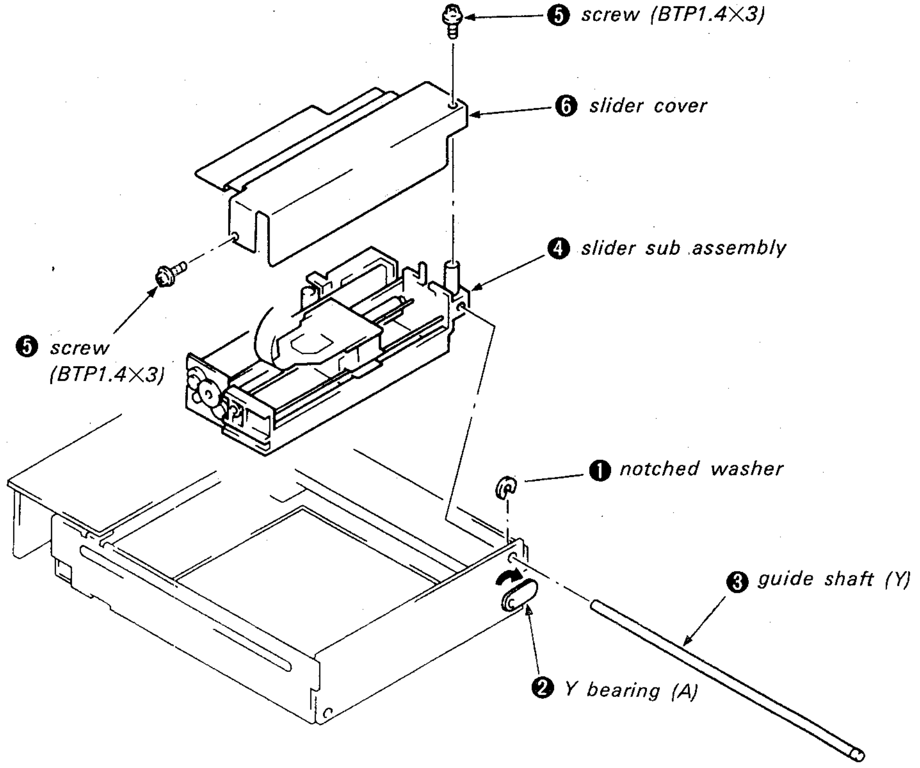
the LOAD button.

4 Press the START button while pressing the STOP/MODE button. (The fourth block will blink.)

SECTION 2
DISASSEMBLY

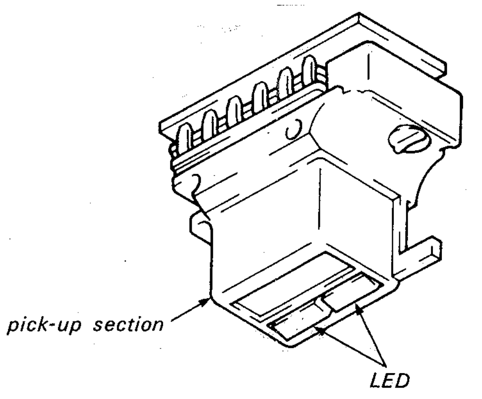
2-1. REMOVAL OF SLIDER BLOCK (in IMAGE SCANNER)

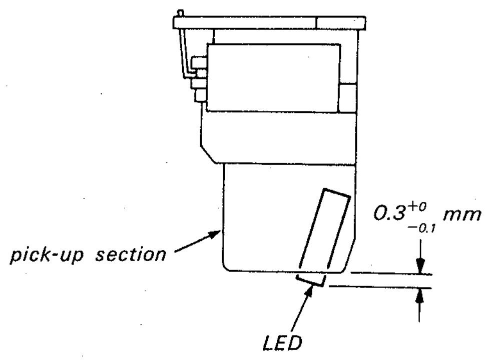
1) Remove notched washer ❶.
2) Turn the Y bearing (A) ❷ in the direction of the arrow.
3) Pull out guide shaft (Y) ❸.
4) Remove slider sub assembly ❹.
5) Remove the two screws ❺ and remove the slider cover ❻.


❺ screw (BTP1.4×3)
❻ slider cover
❹ slider sub assembly
❺ screw (BTP1.4×3)
❶ notched washer
❸ guide shaft (Y)
❷ Y bearing (A)

2-2. PRECAUTION WHEN MOUNTING LED D901, D902 (PICK-UP SECTION) (in IMAGE SCANNER)

1) When mounting the LEDs (D901, D902), be sure that it protrudes from the bottom of the pick-up section by $0.3^{+0}_{-0.1}$ mm.

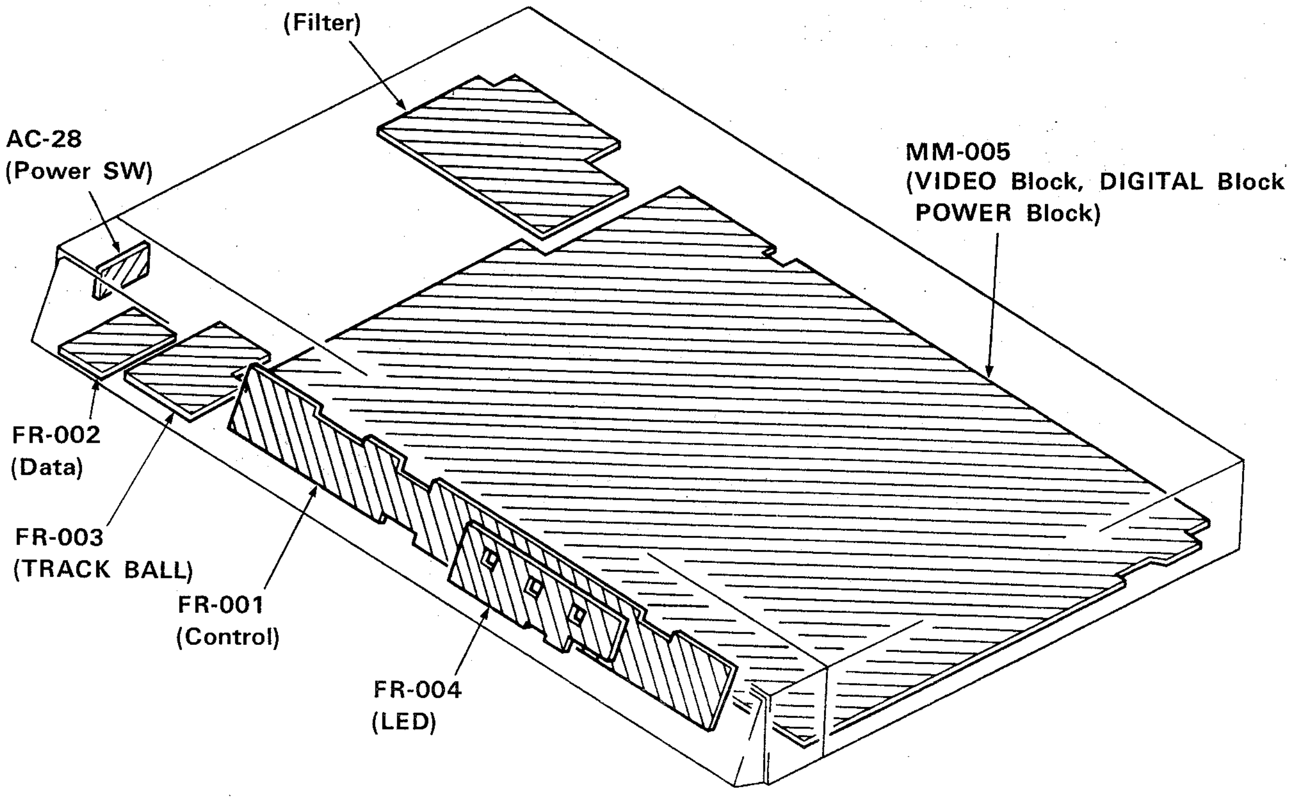

pick-up section
LED


$0.3^{+0}_{-0.1}$ mm
pick-up section
LED

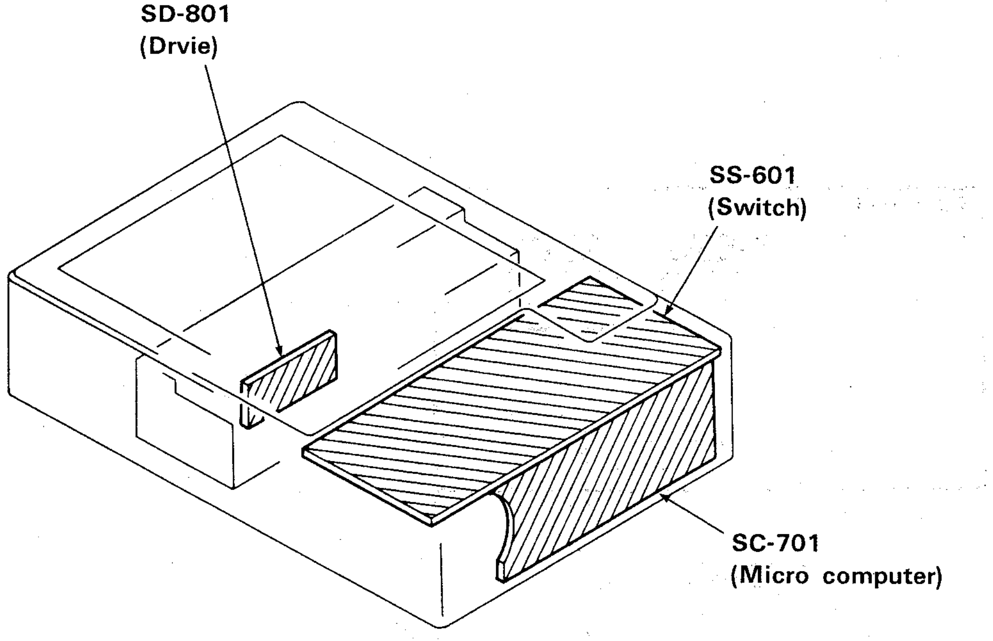
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

[MAIN]

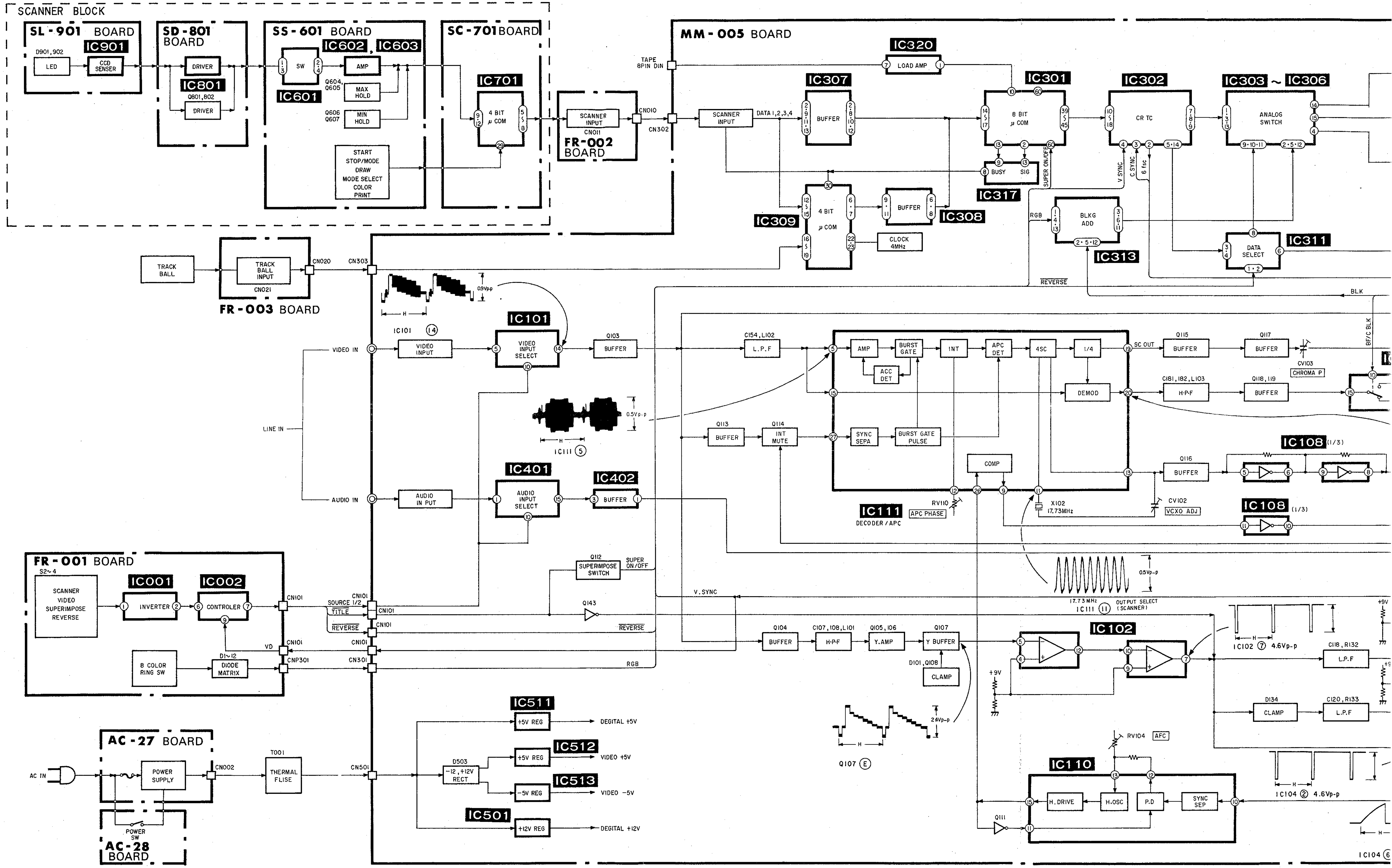

AC-27
(Filter)
AC-28
(Power SW)
MM-005
(VIDEO Block, DIGITAL Block
POWER Block)
FR-002
(Data)
FR-003
(TRACK BALL)
FR-001
(Control)
FR-004
(LED)

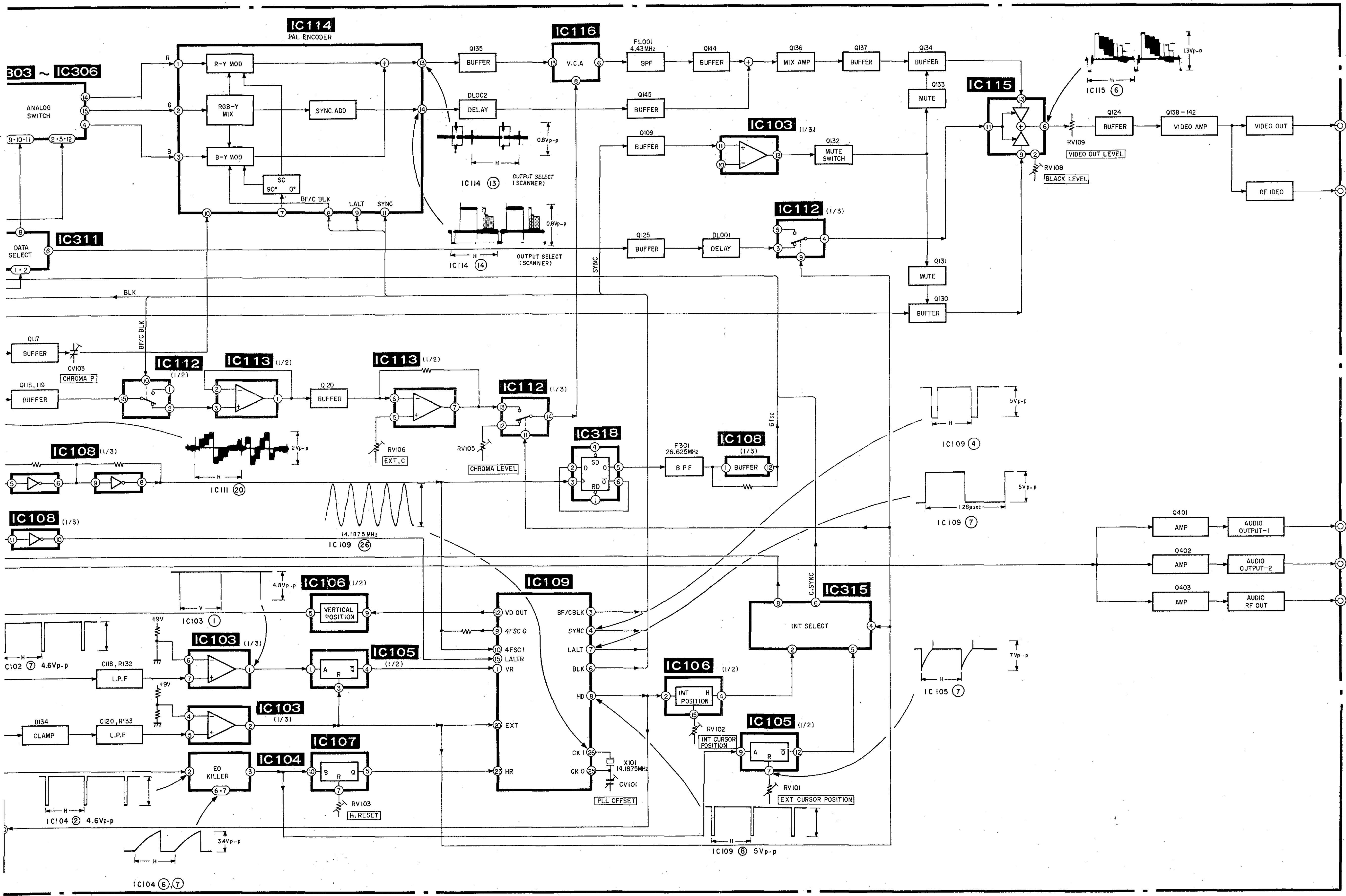
[SCANNER]


SD-801
(Drvie)
SS-601
(Switch)
SC-701
(Micro computer)

- SL-901 flexible board is within scanner slider block. (See 2-1. Removal of slider block)

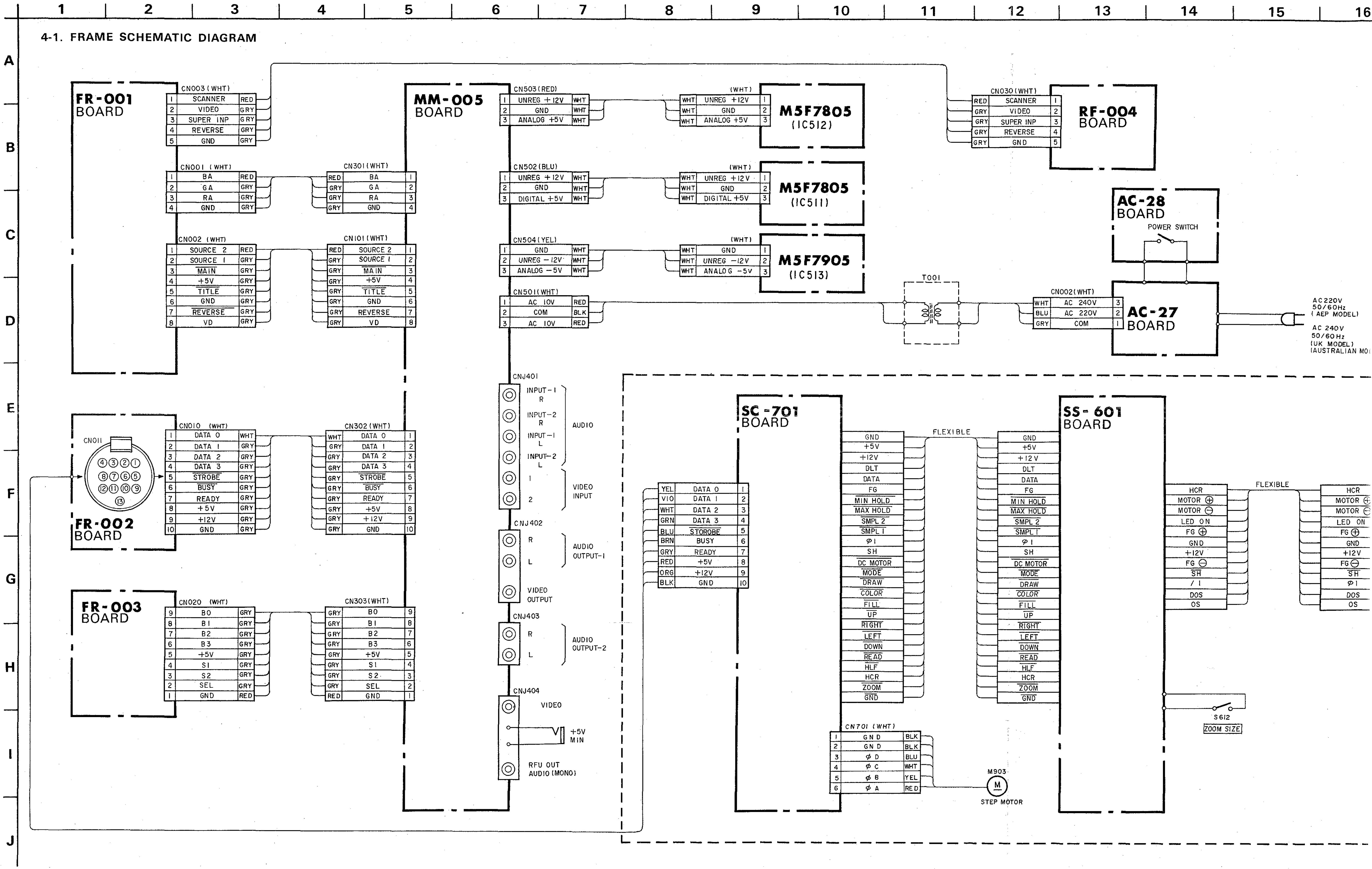
3-2. BLOCK DIAGRAM

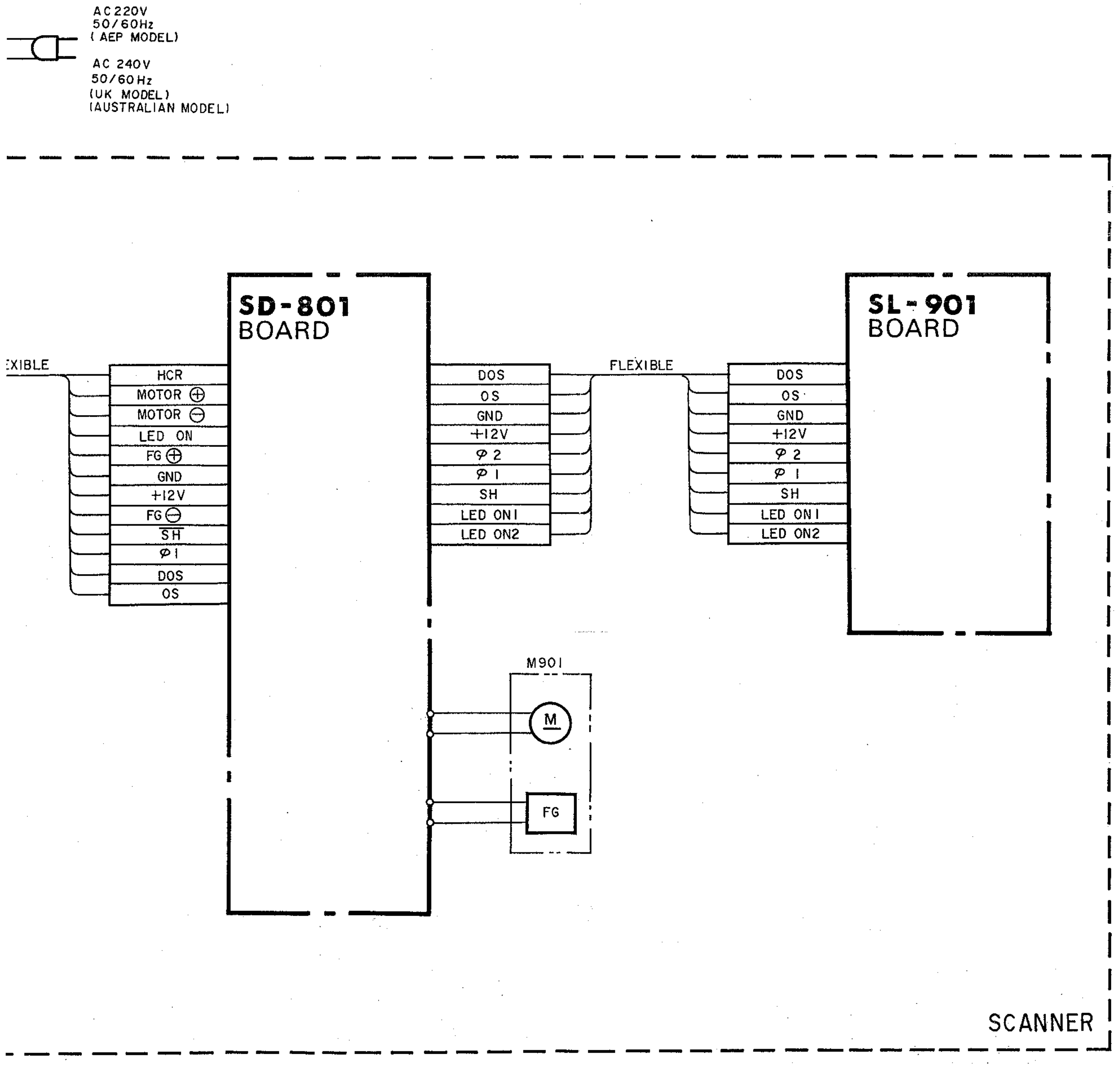

SCANNER BLOCK
SL-901 BOARD
IC901
D901,902
LED
CCD SENSER
SD-801 BOARD
DRIVER
IC801
Q801,802
DRIVER
SS-601 BOARD
IC602
IC603
SW
AMP
IC601
Q604,Q605
MAX HOLD
Q606 Q607
MIN HOLD
START
STOP/MODE
DRAW
MODE SELECT
COLOR
PRINT
SC-701BOARD
IC701
4 BIT μ COM
FR-002 BOARD
SCANNER INPUT
CN010
CN011
CN302
TAPE 8PIN DIN
MM-005 BOARD
IC320
LOAD AMP
IC307
BUFFER
IC301
8 BIT μ COM
BUSY
SIG
SUPER ON/OFF
IC317
IC302
CR TC
V SYNC
C SYNC
6 fsc
IC303 ~ IC306
ANALOG SWITCH
SCANNER INPUT
DATA 1,2,3,4
IC309
4 BIT μ COM
BUFFER
IC308
CLOCK 4MHz
RGB
BLKG ADD
IC313
REVERSE
DATA SELECT
IC311
BLK
BF/C BLK
TRACK BALL
TRACK BALL INPUT
CN020
CN021
CN303
FR-003 BOARD
0.9Vpp
H
IC101 ⑭
IC101
VIDEO IN
VIDEO INPUT
VIDEO INPUT SELECT
Q103
BUFFER
LINE IN
0.5Vp-p
IC111 ⑤
AUDIO IN
AUDIO IN PUT
IC401
AUDIO INPUT SELECT
IC402
BUFFER
C154,L102
L.P.F
AMP
BURST GATE
ACC DET
INT
APC DET
4SC
1/4
DEMOD
SC OUT
Q115
BUFFER
Q117
BUFFER
CV103
CHROMA P
C181,182,L103
H-P-F
Q118,119
BUFFER
Q113
BUFFER
Q114
INT MUTE
SYNC SEPA
BURST GATE PULSE
COMP
IC111
DECODER/APC
RV110
APC PHASE
X102
17.73MHz
CV102
VCXO ADJ
Q116
BUFFER
IC108 (1/3)
IC108 (1/3)
FR-001 BOARD
S2~4
SCANNER
VIDEO
SUPERIMPOSE
REVERSE
IC001
INVERTER
IC002
CONTROLER
CN101
VD
CN101
8 COLOR RING SW
D1~12
DIODE MATRIX
CNP301
CN301
SOURCE 1/2
TITLE
REVERSE
CN101
Q112
SUPERIMPOSE SWITCH
SUPER ON/OFF
V.SYNC
Q143
REVERSE
RGB
0.5Vp-p
17.73MHz
IC111 ⑪
OUTPUT SELECT (SCANNER)
Q104
BUFFER
C107,108,L101
H-P-F
Q105,106
Y.AMP
Q107
Y BUFFER
D101,Q108
CLAMP
IC102
+9V
IC102 ⑦ 4.6Vp-p
C118,R132
L.P.F
D134
CLAMP
C120,R133
L.P.F
2.4Vp-p
Q107 Ⓔ
IC511
+5V REG
DEGITAL +5V
IC512
+5V REG
VIDEO +5V
D503
-12, +12V RECT
IC513
-5V REG
VIDEO -5V
IC501
+12V REG
DEGITAL +12V
AC-27 BOARD
AC IN
POWER SUPPLY
CN002
T001
THERMAL FLISE
CN501
POWER SW
AC-28 BOARD
RV104
AFC
IC110
H.DRIVE
H.OSC
P.D
SYNC SEP
Q111
IC104 ② 4.6Vp-p
IC104 ⑥


IC114
PAL ENCODER
R-Y MOD
RGB-Y MIX
B-Y MOD
SYNC ADD
SC 90° 0°
BF/C BLK
LALT
SYNC
303 ~ IC306
ANALOG SWITCH
9·10·11
2·5·12
IC311
DATA SELECT
1·2
Q135 BUFFER
IC116 V.C.A
FL001 4.43MHz BPF
Q144 BUFFER
Q136 MIX AMP
Q137 BUFFER
Q134 BUFFER
Q133 MUTE
DL002 DELAY
Q145 BUFFER
Q109 BUFFER
IC103 (1/3)
Q132 MUTE SWITCH
0.8Vp-p
IC114 ⑬ OUTPUT SELECT (SCANNER)
IC114 ⑭ OUTPUT SELECT (SCANNER)
0.8Vp-p
IC115
IC115 ⑥
1.3Vp-p
Q124 BUFFER
Q138 - 142 VIDEO AMP
VIDEO OUT
RF IDEO
RV109 VIDEO OUT LEVEL
RV108 BLACK LEVEL
CNJ402 VIDEO LINE OUT
CNJ404 VIDEO RFU
Q125 BUFFER
DL001 DELAY
IC112 (1/3)
Q131 MUTE
Q130 BUFFER
SYNC
BLK
Q117 BUFFER
CV103 CHROMA P
BF/C BLK
Q118, 119 BUFFER
IC112 (1/2)
IC113 (1/2)
Q120 BUFFER
IC113 (1/2)
RV106 EXT.C
RV105 CHROMA LEVEL
IC112 (1/3)
IC318
SD D Q RD Q̄
F301 26.625MHz BPF
IC108 (1/3) BUFFER
6fsc
2Vp-p
IC108 (1/3)
IC111 ⑳
IC108 (1/3)
14.1875MHz
IC109 ㉖
IC109 ④ 5Vp-p
IC109 ⑦ 128μsec 5Vp-p
Q401 AMP
AUDIO OUTPUT-1
Q402 AMP
AUDIO OUTPUT-2
Q403 AMP
AUDIO RF OUT
CNJ402 AUDIO LINE L,R OUT
CNJ403 AUDIO LINE L,R OUT
CNJ404 AUDIO RFU
4.8Vp-p
IC103 ①
IC106 (1/2) VERTICAL POSITION
IC109
VD OUT
4FSC O
4FSC I
LALTR
VR
EXT
HR
BF/CBLK
SYNC
LALT
BLK
HD
CK I
CK O
X101 14.1875MHz
CV101 PLL OFFSET
IC315 INT SELECT
C.SYNC
IC106 (1/2) INT H POSITION
RV102 INT CURSOR POSITION
IC105 (1/2)
RV101 EXT CURSOR POSITION
IC105 ⑦ 7Vp-p
+9V
IC103 (1/3)
IC105 (1/2) A R Q̄
IC102 ⑦ 4.6Vp-p
C118, R132 L.P.F
IC103 (1/3)
D134 CLAMP
C120, R133 L.P.F
EQ KILLER 6·7
IC104
IC107 B R Q
RV103 H. RESET
IC104 ② 4.6Vp-p
3.4Vp-p
IC104 ⑥,⑦
IC109 ⑧ 5Vp-p
H

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
FR-001 BOARD
CN003 (WHT) SCANNER VIDEO SUPER INP REVERSE GND
CN001 (WHT) BA GA RA GND
CN002 (WHT) SOURCE 2 SOURCE 1 MAIN +5V TITLE GND REVERSE VD
FR-002 BOARD
CN011
CN010 (WHT) DATA 0 DATA 1 DATA 2 DATA 3 STROBE BUSY READY +5V +12V GND
FR-003 BOARD
CN020 (WHT) B0 B1 B2 B3 +5V S1 S2 SEL GND
MM-005 BOARD
CN301 (WHT) BA GA RA GND
CN101 (WHT) SOURCE 2 SOURCE 1 MAIN +5V TITLE GND REVERSE VD
CN302 (WHT) DATA 0 DATA 1 DATA 2 DATA 3 STROBE BUSY READY +5V +12V GND
CN303 (WHT) B0 B1 B2 B3 +5V S1 S2 SEL GND
CN503 (RED) UNREG +12V GND ANALOG +5V
CN502 (BLU) UNREG +12V GND DIGITAL +5V
CN504 (YEL) GND UNREG −12V ANALOG −5V
CN501 (WHT) AC 10V COM AC 10V
CNJ401 INPUT-1 R INPUT-2 R INPUT-1 L INPUT-2 L AUDIO 1 2 VIDEO INPUT
CNJ402 R L AUDIO OUTPUT-1 VIDEO OUTPUT
CNJ403 R L AUDIO OUTPUT-2
CNJ404 VIDEO +5V MIN RFU OUT AUDIO (MONO)
M5F7805 (IC512) (WHT) UNREG +12V GND ANALOG +5V
M5F7805 (IC511) (WHT) UNREG +12V GND DIGITAL +5V
M5F7905 (IC513) (WHT) GND UNREG −12V ANALOG −5V
RF-004 BOARD
CN030 (WHT) SCANNER VIDEO SUPER INP REVERSE GND
AC-28 BOARD POWER SWITCH
T001
AC-27 BOARD
CN002 (WHT) AC 240V AC 220V COM
AC220V 50/60Hz (AEP MODEL)
AC 240V 50/60Hz (UK MODEL) (AUSTRALIAN MO
SC-701 BOARD
DATA 0 DATA 1 DATA 2 DATA 3 STROBE BUSY READY +5V +12V GND
FLEXIBLE
GND +5V +12V DLT DATA FG MIN HOLD MAX HOLD SMPL 2 SMPL 1 φ1 SH DC MOTOR MODE DRAW COLOR FILL UP RIGHT LEFT DOWN READ HLF HCR ZOOM GND
CN701 (WHT) GND GND φD φC φB φA
M903 M STEP MOTOR
SS-601 BOARD
FLEXIBLE
HCR MOTOR ⊕ MOTOR ⊖ LED ON FG ⊕ GND +12V FG ⊖ SH φ1 DOS OS
S612 ZOOM SIZE
RED GRY WHT BLK BLU YEL VIO GRN BRN ORG


AC220V
50/60Hz
(AEP MODEL)
AC 240V
50/60Hz
(UK MODEL)
(AUSTRALIAN MODEL)
XIBLE
HCR
MOTOR ⊕
MOTOR ⊖
LED ON
FG ⊕
GND
+12V
FG ⊖
SH
φ1
DOS
OS
SD-801
BOARD
DOS
OS
GND
+12V
φ2
φ1
SH
LED ON1
LED ON2
FLEXIBLE
DOS
OS
GND
+12V
φ2
φ1
SH
LED ON1
LED ON2
SL-901
BOARD
M901
M
FG
SCANNER

Seite 22 leer

SCANNER SCANNER

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

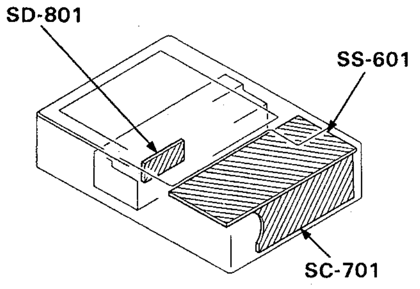
Note

Soldering side:	Parts on the soldering side being seen from the soldering are stated.
Component side:	Parts on the component side being seen from the component are stated.

Regarding color indication of pattern

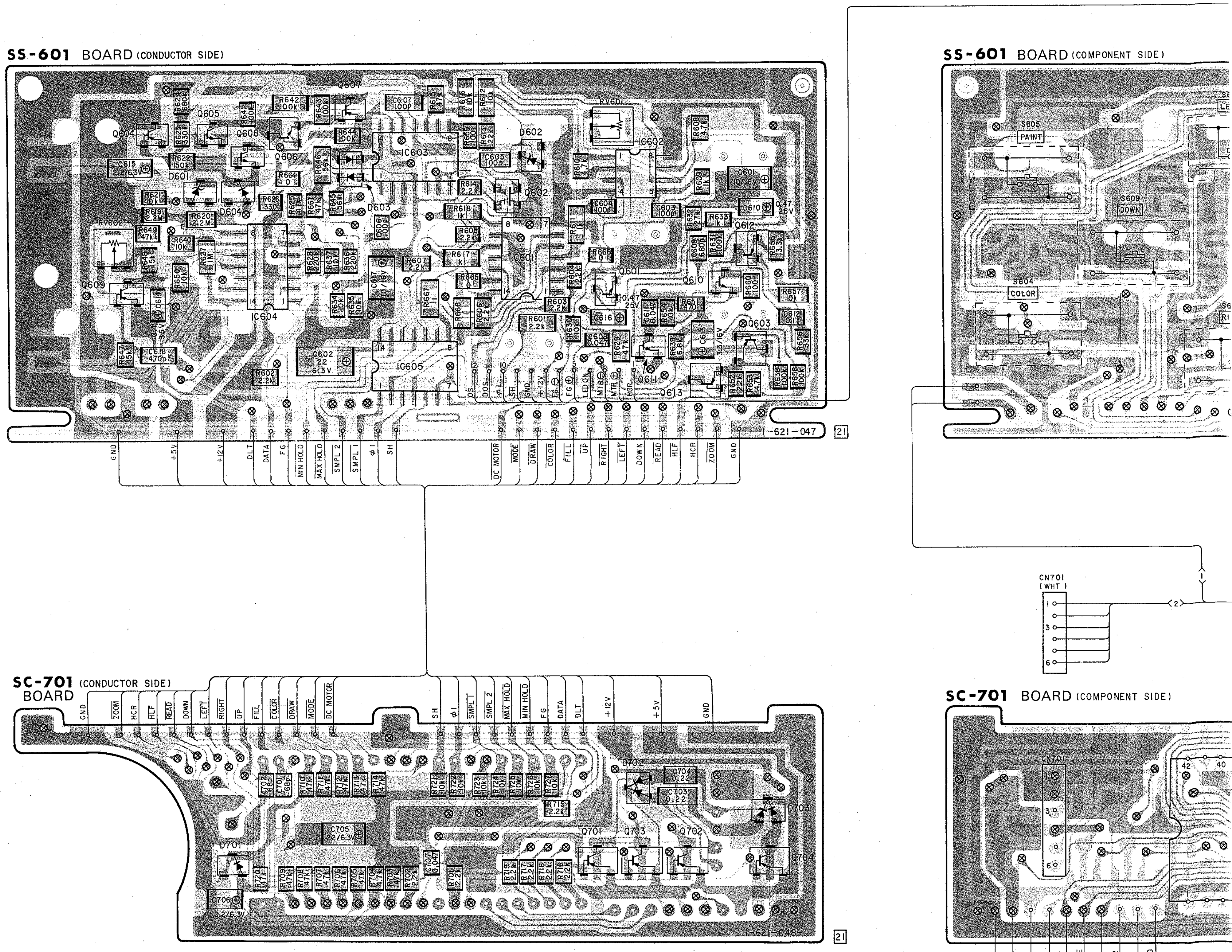
* Pattern being seen in the state from the surface side are indicated in gray pattern.

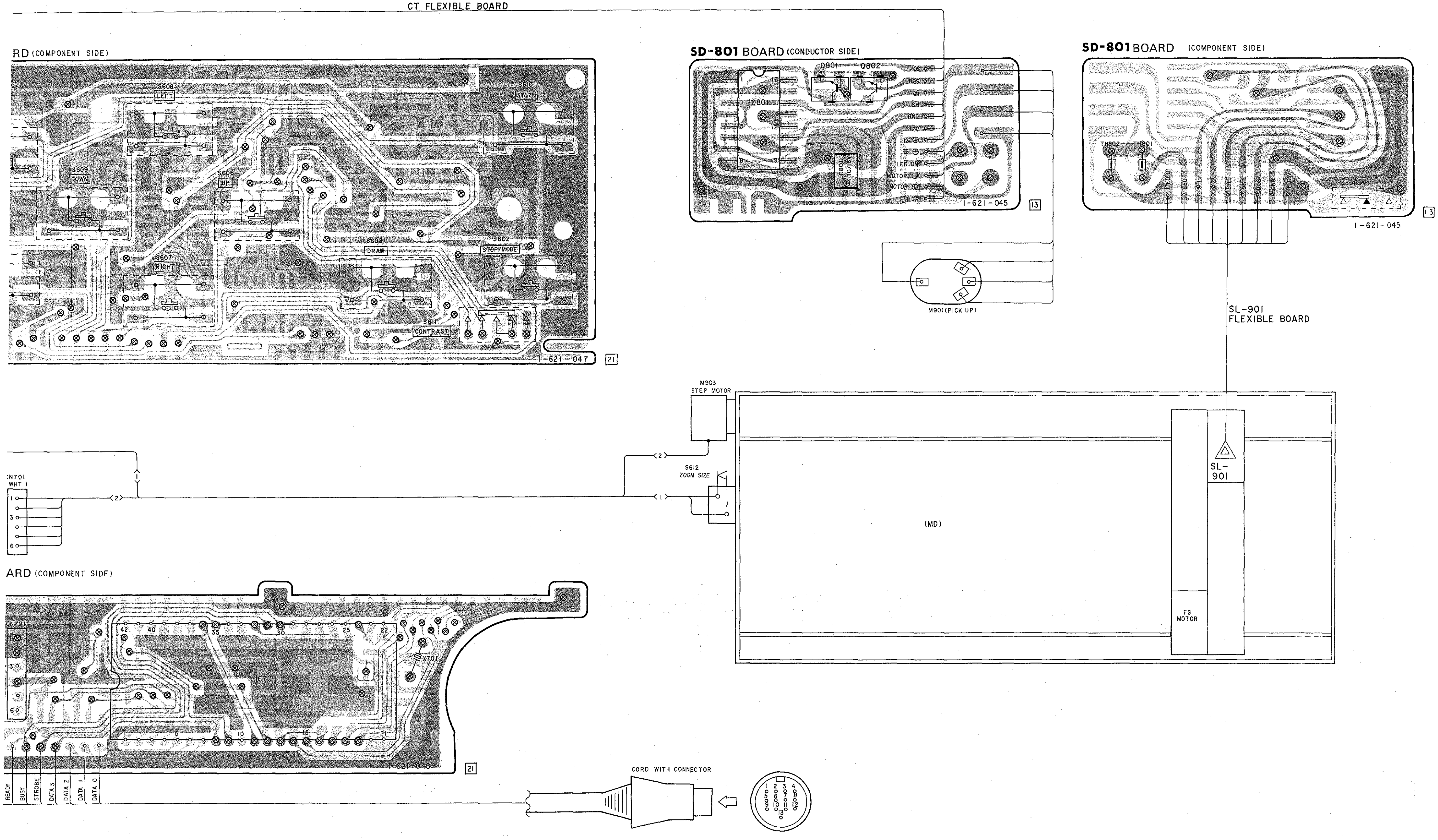
* Pattern being seen in the state of the rear surface side is indicated in green pattern.


SD-801
SS-601
SC-701

SS-601 (SWITCH), SC-701 (MICRO COMPUTER), SD-801 (DRIVE), SL-901 (CCD SENSOR) PRINTED WIRING BOARD

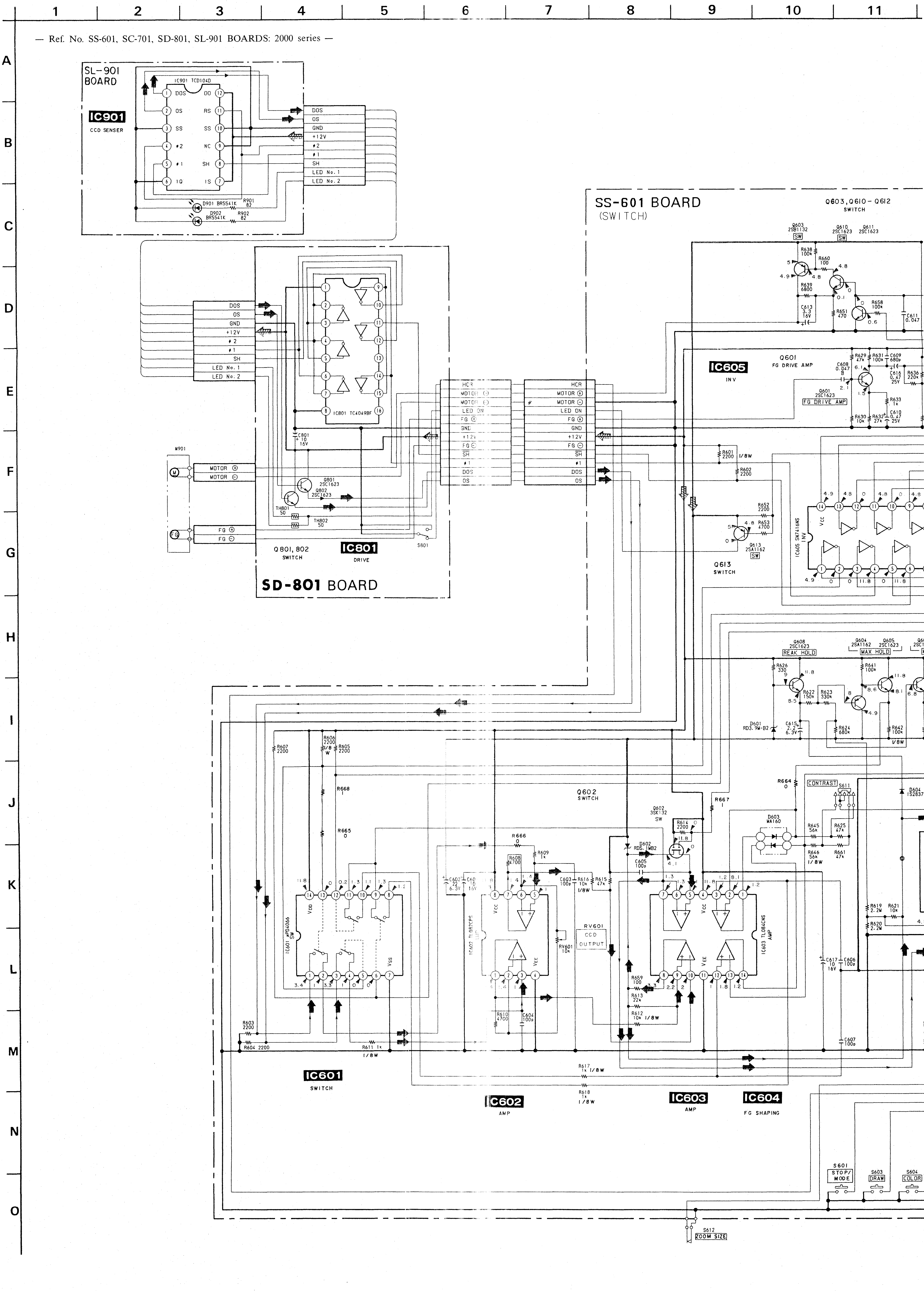
— Ref. No. SS-601, SC-701, SD-801, SL-901 BOARDS: 2000 series —


SS-601 BOARD (CONDUCTOR SIDE)
SS-601 BOARD (COMPONENT SIDE)
SC-701 (CONDUCTOR SIDE) BOARD
SC-701 BOARD (COMPONENT SIDE)
IC602
IC603
IC604
IC605
Q601
Q602
Q603
Q604
Q605
Q606
Q607
Q608
Q609
Q610
Q611
Q612
Q613
D601
D602
D603
D604
RV601
RV602
1-621-047
21
GND
+5V
+12V
DLT
DATA
FG
MIN HOLD
MAX HOLD
SMPL 2
SMPL 1
φ1
SH
DC MOTOR
MODE
DRAW
COLOR
FILL
UP
RIGHT
LEFT
DOWN
READ
HLF
HCR
ZOOM
GND
S605
PAINT
S609
DOWN
S604
COLOR
CN701
(WHT)
1
3
6
GND
ZOOM
HCR
HLT
READ
DOWN
LEFT
RIGHT
UP
FILL
COLOR
DRAW
MODE
DC MOTOR
SH
φ1
SMPL 1
SMPL 2
MAX HOLD
MIN HOLD
FG
DATA
DLT
+12V
+5V
GND
Q701
Q702
Q703
Q704
Q705
D701
D702
C705
22/6.3V
C706
2.2/6.3V
1-621-048
21
GND
+12V
+5V
READY
BUSY
STROBE
DATA 3
DATA 2
DATA 1
DATA 0

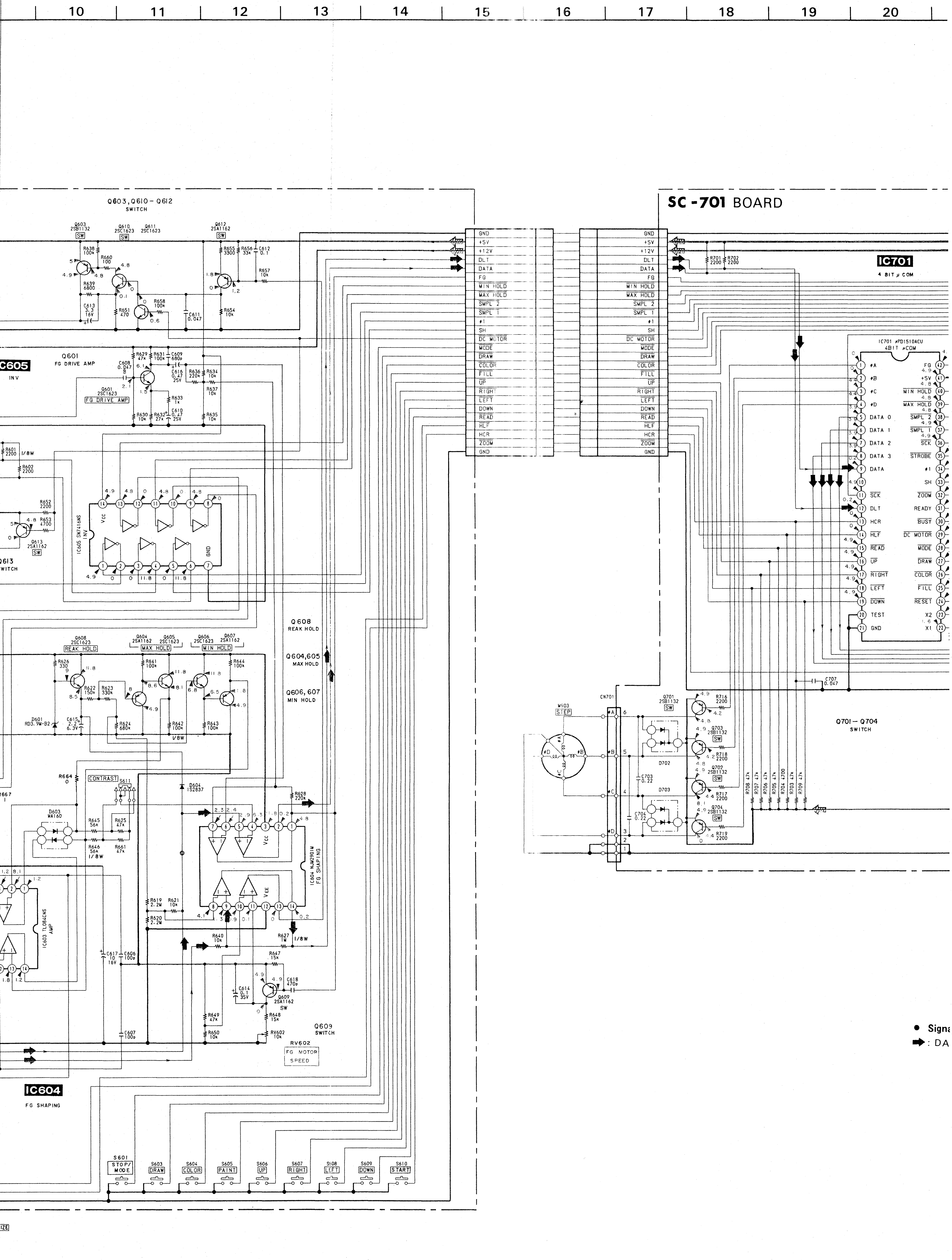

CT FLEXIBLE BOARD
RD (COMPONENT SIDE)
S608 LEFT
S610 START
S609 DOWN
S606 UP
S607 RIGHT
S603 DRAW
S602 STOP/MODE
S611 CONTRAST
1-621-047
21
SD-801 BOARD (CONDUCTOR SIDE)
Q801
Q802
IC801
C801 10/16V
CC
DOS
φ1
SH
GND
+12V
FG
FG
LED ON
MOTOR
MOTOR
NCR
1-621-045
13
SD-801 BOARD (COMPONENT SIDE)
TH802
TH801
S801
1-621-045
13
M901 (PICK UP)
SL-901 FLEXIBLE BOARD
M903 STEP MOTOR
S612 ZOOM SIZE
(MD)
SL-901
FG MOTOR
CN701 (WHT)
1
3
6
ARD (COMPONENT SIDE)
CN701
42
40
35
30
25
22
IC701
X701
1
5
10
15
21
1-621-048
21
READY
BUSY
STROBE
DATA 3
DATA 2
DATA 1
DATA 0
CORD WITH CONNECTOR

SS-601 (SWITCH), SC-701 (MICRO COMPUTER), SD-801 (DRIVE), SL-901 (CCD SENSOR) SCHEMATIC DIAGRAM

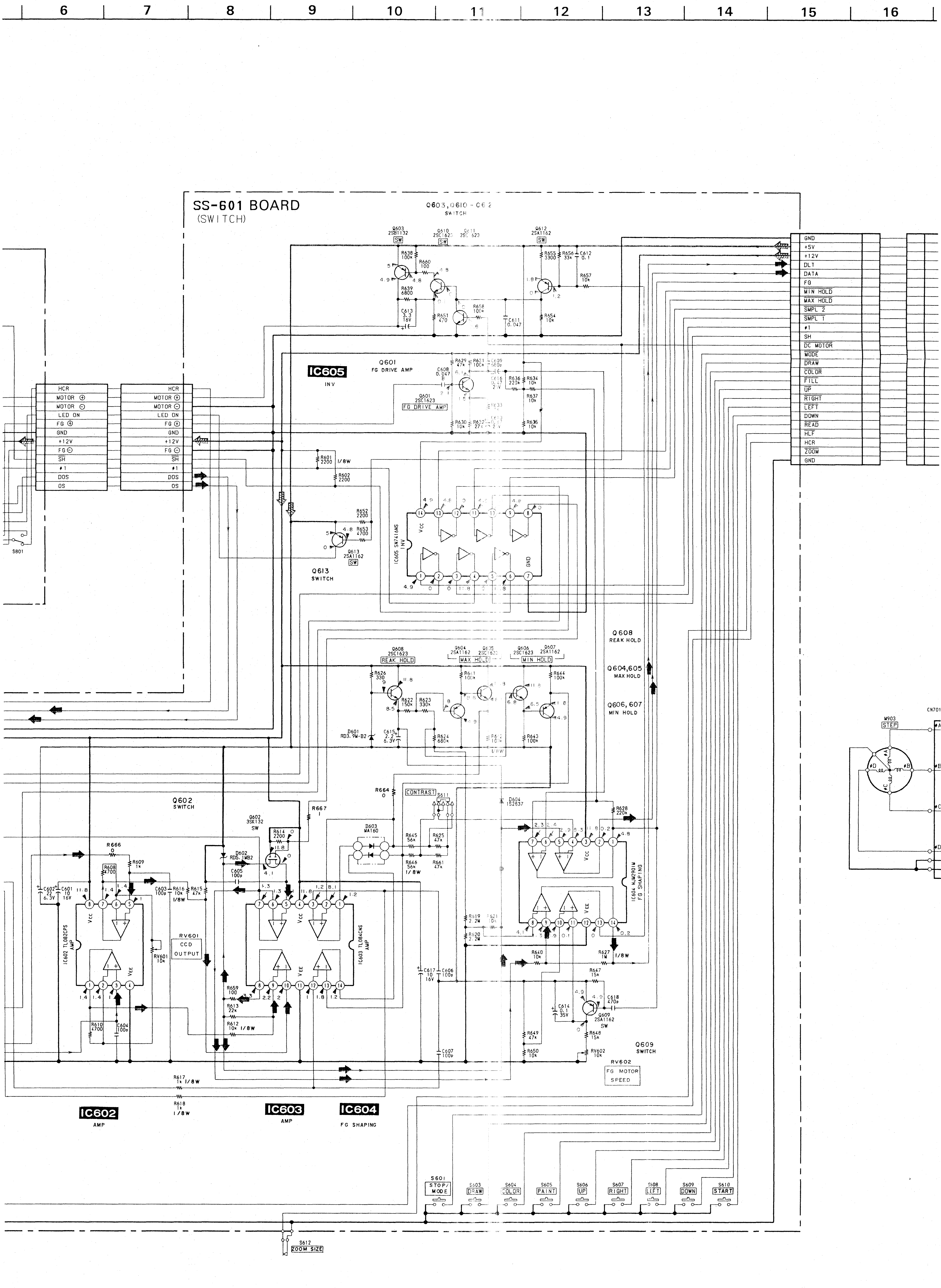
— Ref. No. SS-601, SC-701, SD-801, SL-901 BOARDS: 2000 series —



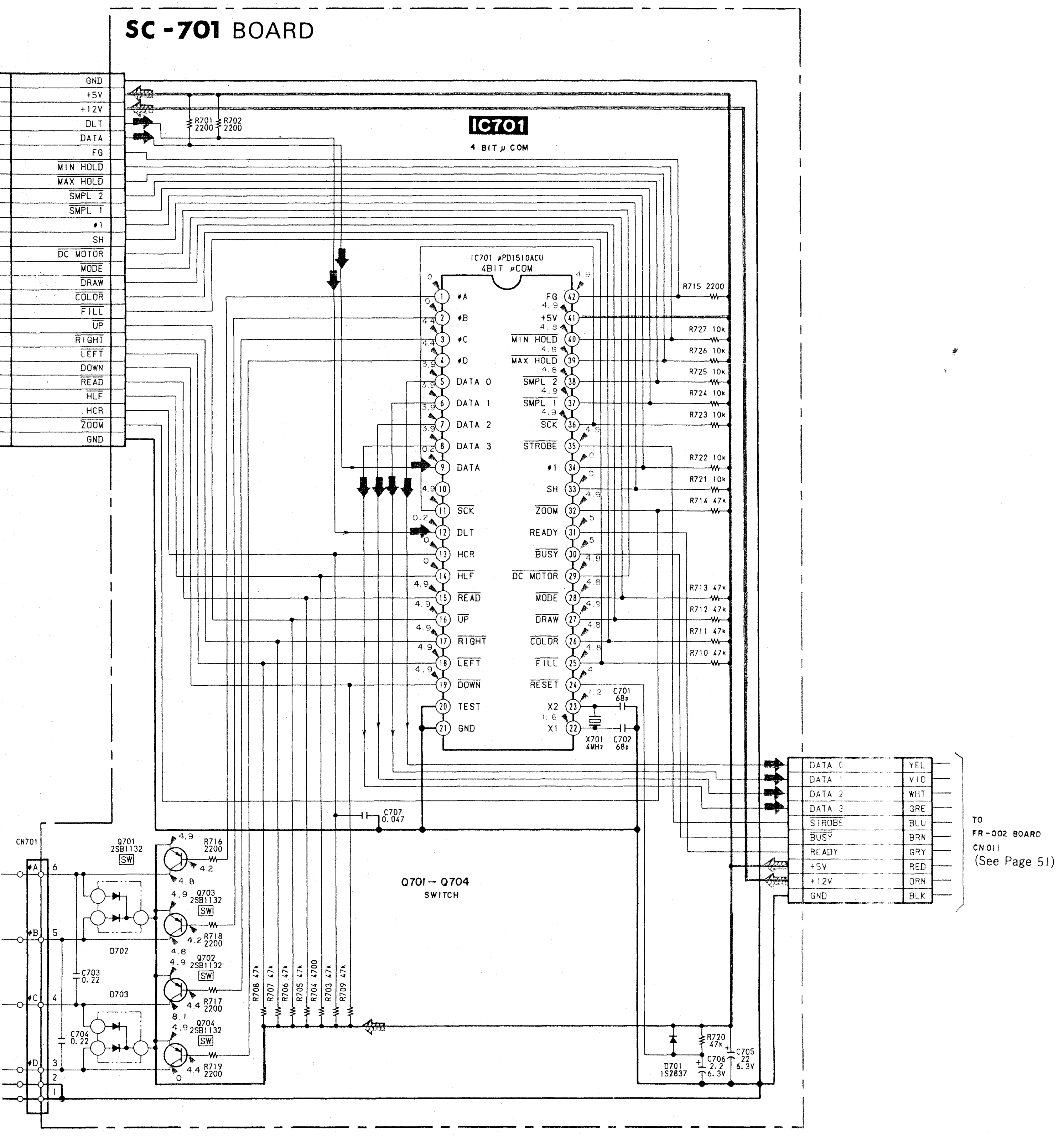
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
SL-901 BOARD
IC901
CCD SENSER
IC901 TCD104D
DOS
OS
SS
φ2
φ1
1Q
DO
RS
SS
NC
SH
IS
D901 BR5541K
D902 BR5541K
R901 82
R902 82
DOS
OS
GND
+12V
φ2
φ1
SH
LED No. 1
LED No. 2
IC801 TC4049BF
C801 10 16V
M901
MOTOR ⊕
MOTOR ⊖
FG ⊕
FG ⊖
Q801 2SC1623
Q802 2SC1623
TH801 50
TH802 50
S801
Q801, 802
SWITCH
IC801
DRIVE
SD-801 BOARD
HCR
MOTOR ⊕
MOTOR ⊖
LED ON
FG ⊕
GND
+12V
FG ⊖
SH
φ1
DOS
OS
SS-601 BOARD
(SWITCH)
Q603, Q610 – Q612
SWITCH
Q603 2SB1132 SW
Q610 2SC1623 SW
Q611 2SC1623
IC605
INV
Q601
FG DRIVE AMP
Q601 2SC1623 FG DRIVE AMP
IC605 SN7416NS INV
Q613 2SA1162 SW
Q613
SWITCH
Q608 2SC1623 REAK HOLD
Q604 2SA1162
Q605 2SC1623
MAX HOLD
D601 RD3.9M-B2
CONTRAST S611
D603 MA160
D602 RD5.1MB2
Q602 3SK132 SW
Q602
SWITCH
RV601 CCD OUTPUT
IC601 μPD4066 SW
IC602 TL082CPS
IC603 TL084CNS AMP
IC601
SWITCH
IC602
AMP
IC603
AMP
IC604
FG SHAPING
S601 STOP/MODE
S603 DRAW
S604 COLOR
S612 ZOOM SIZE


10
11
12
13
14
15
16
17
18
19
20
Q603, Q610 - Q612
SWITCH
Q603 2SB1132 SW
Q610 2SC1623 SW
Q611 2SC1623
Q612 2SA1162 SW
SC-701 BOARD
IC701
4 BIT µ COM
IC701 µPD1510ACU 4BIT µCOM
GND
+5V
+12V
DLT
DATA
FG
MIN HOLD
MAX HOLD
SMPL 2
SMPL 1
φ1
SH
DC MOTOR
MODE
DRAW
COLOR
FILL
UP
RIGHT
LEFT
DOWN
READ
HLF
HCR
ZOOM
φA
φB
φC
φD
DATA 0
DATA 1
DATA 2
DATA 3
SCK
DLT
TEST
STROBE
READY
BUSY
RESET
X2
X1
IC605
INV
IC605 SN7416NS INV
Q601
FG DRIVE AMP
Q601 2SC1623 FG DRIVE AMP
Q613 2SA1162 SW
Q613
SWITCH
Q608
REAK HOLD
Q604, 605
MAX HOLD
Q606, 607
MIN HOLD
Q608 2SC1623 REAK HOLD
Q604 2SA1162
Q605 2SC1623
Q606 2SC1623
Q607 2SA1162
D601 RD3.9M-B2
D603 MA160
D604 1S2837
CONTRAST S611
IC604 NJM2901M FG SHAPING
IC603 TL084CNS AMP
IC604
FG SHAPING
Q609 2SA1162 SW
Q609
SWITCH
RV602
FG MOTOR SPEED
S601 STOP/MODE
S603 DRAW
S604 COLOR
S605 PAINT
S606 UP
S607 RIGHT
S608 LEFT
S609 DOWN
S610 START
CN701
M903 STEP
Q701 2SB1132 SW
Q702 2SB1132 SW
Q703 2SB1132 SW
Q704 2SB1132 SW
D702
D703
Q701 - Q704
SWITCH
C707 0.047
● Signa
➡: DA

901 (CCD SENSOR) SCHEMATIC DIAGRAM

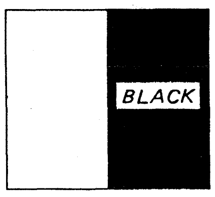

6
7
8
9
10
11
12
13
14
15
16
SS-601 BOARD
(SWITCH)
Q603,Q610-Q612
SWITCH
Q603
2SB1132
SW
Q610
2SC1623
Q611
2SC1623
Q612
2SA1162
IC605
INV
Q601
FG DRIVE AMP
Q601
2SC1623
FG DRIVE AMP
HCR
MOTOR ⊕
MOTOR ⊖
LED ON
FG ⊕
GND
+12V
FG ⊖
SH
ϕ1
DOS
OS
S801
R601
2200 1/8W
R602
2200
R652
2200
R653
4700
Q613
2SA1162
SW
Q613
SWITCH
IC605 SN7416NS
INV
Vcc
GND
GND
+5V
+12V
DLT
DATA
FG
MIN HOLD
MAX HOLD
SMPL 2
SMPL 1
ϕ1
SH
DC MOTOR
MODE
DRAW
COLOR
FILL
UP
RIGHT
LEFT
DOWN
READ
HLF
HCR
ZOOM
GND
Q608
REAK HOLD
Q604,605
MAX HOLD
Q606,607
MIN HOLD
Q608
2SC1623
REAK HOLD
Q604
2SA1162
Q605
2SC1623
MAX HOLD
Q606
2SC1623
Q607
2SA1162
MIN HOLD
D601
RD3.9M-B2
CN701
M903
STEP
Q602
SWITCH
Q602
3SK132
SW
D602
RD5.1MB2
D603
MA160
CONTRAST
S611
D604
1S2837
R664
0
R667
1
R666
0
R609
1k
R608
4700
C602
22
6.3V
C601
10
16V
C603
100p
R616
10k
1/8W
R615
47k
RV601
CCD
OUTPUT
RV601
10k
IC602 TL082CPS
AMP
IC603 TL084CNS
AMP
IC604 NJM2901N
FG SHAPING
R659
100
R613
22k
R612
10k 1/8W
R610
4700
C604
100p
R617
1k 1/8W
R618
1k
1/8W
C617
10
16V
C606
100p
C607
100p
R619
2.2M
R620
2.2M
R640
10k
R627
1M
1/8W
R628
220k
R647
15k
C614
0.1
35V
C618
470p
Q609
2SA1162
SW
R648
15k
R649
47k
R650
10k
RV602
10k
Q609
SWITCH
RV602
FG MOTOR
SPEED
IC602
AMP
IC603
AMP
IC604
FG SHAPING
S601
STOP/
MODE
S603
DRAW
S604
COLOR
S605
PAINT
S606
UP
S607
RIGHT
S608
LIFT
S609
DOWN
S610
START
S612
ZOOM SIZE

17 18 19 20 21 22 23 24


SC-701 BOARD
IC701
4 BIT μ COM
IC701 μPD1510ACU
4BIT μCOM
GND
+5V
+12V
DLT
DATA
FG
MIN HOLD
MAX HOLD
SMPL 2
SMPL 1
φ1
SH
DC MOTOR
MODE
DRAW
COLOR
FILL
UP
RIGHT
LEFT
DOWN
READ
HLF
HCR
ZOOM
GND
R701 2200
R702 2200
φA
φB
φC
φD
DATA 0
DATA 1
DATA 2
DATA 3
DATA
SCK
DLT
HCR
HLF
READ
UP
RIGHT
LEFT
DOWN
TEST
GND
FG
+5V
MIN HOLD
MAX HOLD
SMPL 2
SMPL 1
SCK
STROBE
φ1
SH
ZOOM
READY
BUSY
DC MOTOR
MODE
DRAW
COLOR
FILL
RESET
X2
X1
R715 2200
R727 10k
R726 10k
R725 10k
R724 10k
R723 10k
R722 10k
R721 10k
R714 47k
R713 47k
R712 47k
R711 47k
R710 47k
C701 68p
X701 4MHz
C702 68p
C707 0.047
CN701
Q701 2SB1132 SW
R716 2200
Q703 2SB1132 SW
R718 2200
D702
Q702 2SB1132 SW
R717 2200
D703
Q704 2SB1132 SW
R719 2200
C703 0.22
C704 0.22
φA
φB
φC
φD
Q701 – Q704
SWITCH
R708 47k
R707 47k
R706 47k
R705 47k
R704 4700
R703 47k
R709 47k
D701 1S2837
R720 47k
C706 2.2 6.3V
C705 22 6.3V
DATA 0
DATA 1
DATA 2
DATA 3
STROBE
BUSY
READY
+5V
+12V
GND
YEL
VIO
WHT
GRE
BLU
BRN
GRY
RED
ORN
BLK
TO
FR-002 BOARD
CN011
(See Page 51)

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ☐ : panel for repair.
- ☐ : adjustment designation.
- ▬ : B+ line.
- ⇨ : Flowing direction of B +, − lines.
- Unless otherwise specified, voltages and waveforms are measured with the following conditons.
  COLOUR SELECT knob : BLACK
  INPUT SELECT button : 1
  OUTPUT SELECT button : SUPERIMPOSE
  Input colour-bar signal to INPUT 1.
  Read in Fig.-1 with scanner.



Monitor screen

Fig.-1

Note: Read in to make black about half of the monitor screen.

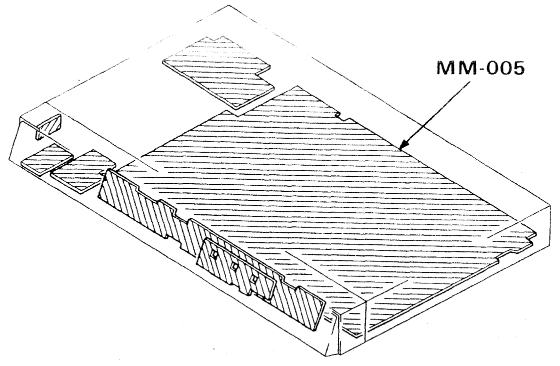
When indicating parts by reference number, please include the board name.

- **Signal path**

➡ : DATA SIGNAL

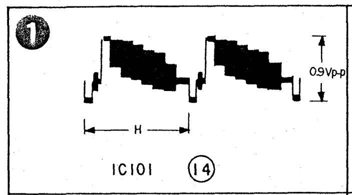
Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.
- Digital transistor (MM-005: Q111, 112, 114, 143, 305) transistor with resistors.
  Refer to the MM-005 board schematic diagram for digital transistor.

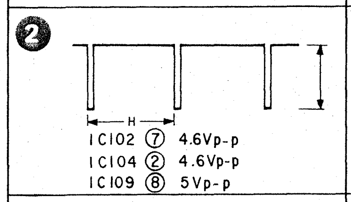


VIDEO VIDEO

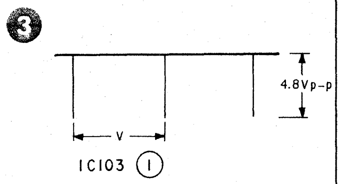
- WAVEFORM MODE
  OUTPUT SELECT . . SUPERIMPOSE
  (⑫ , ⑭ , ⑮ are in SCANNER mode.)



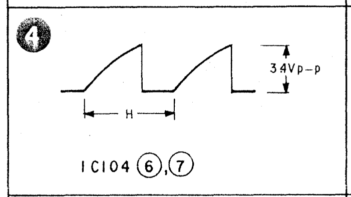
IC101 ⑭



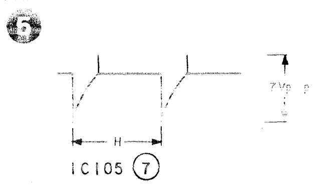
IC102 ⑦ 4.6Vp-p
IC104 ② 4.6Vp-p
IC109 ⑧ 5Vp-p



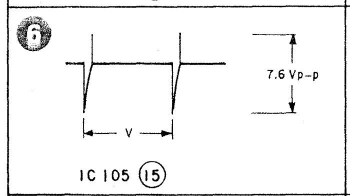
IC103 ①



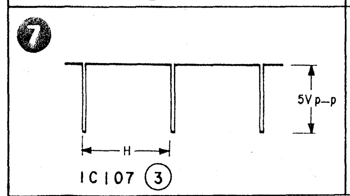
IC104 ⑥,⑦



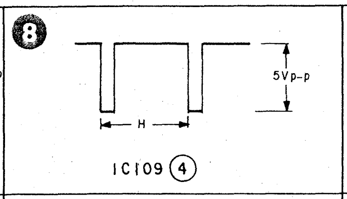
IC105 ⑦



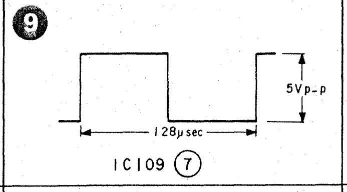
IC105 ⑮



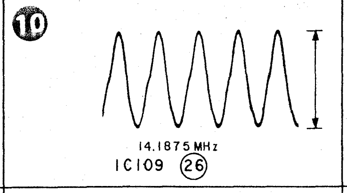
IC107 ③



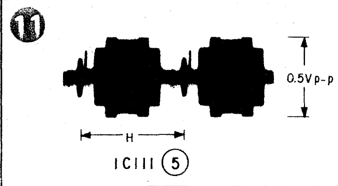
IC109 ④



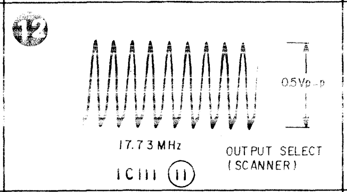
IC109 ⑦



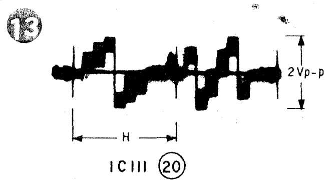
IC109 ㉖



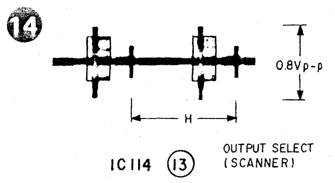
IC111 ⑤



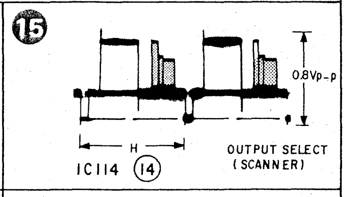
IC111 ⑪



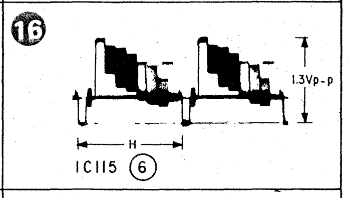
IC111 ⑳



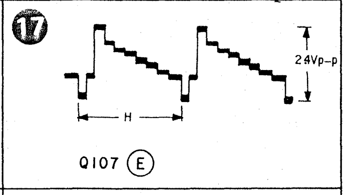
IC114 ⑬



IC114 ⑭



IC115 ⑥



Q107 Ⓔ

MM-005 BOARD

CN101	E-5
CN301	D-5
CN302	E-1
CN303	C-1
CN501	E-12
CN502	A-12
CN503	A-11
CN504	B-11
CV101	G-5
CV102	G-6
CV103	F-6
D101	C-5
D102	B-7
D103	I-4
D104	F-9
D105	F-11
D106	E-11
D107	C-9
D301	H-4
D304	D-5
D305	D-5
D307	F-2
D308	F-1
D309	F-2
D401	B-3
D402	B-2
D403	C-3
D501	D-11
D502	D-11
D503	D-11
D504	D-12
D505	C-12
D506	B-9
D507	B-11
D508	B-11
D509	A-12
D510	B-11
D511	B-12
D512	A-11
D513	B-12
IC101	C-3
IC102	B-6
IC103	C-6
IC104	C-8
IC105	H-12
IC106	I-12
IC107	H-8
IC108	H-4
IC109	G-5
IC110	H-10
IC111	H-6
IC112	F-9
IC113	G-9
IC114	G-11
IC115	D-10
IC116	G-13
IC301	G-3
IC302	H-3
IC303	H-1
IC304	G-1
IC305	I-1
IC306	H-1
IC307	E-3
IC308	D-3
IC309	D-2
IC311	E-5
IC312	D-5
IC313	C-6
IC314	E-6
IC315	D-6
IC316	D-4
IC317	F-1
IC318	F-4
IC319	G-2
IC401	B-1
IC402	B-2
IC501	B-12

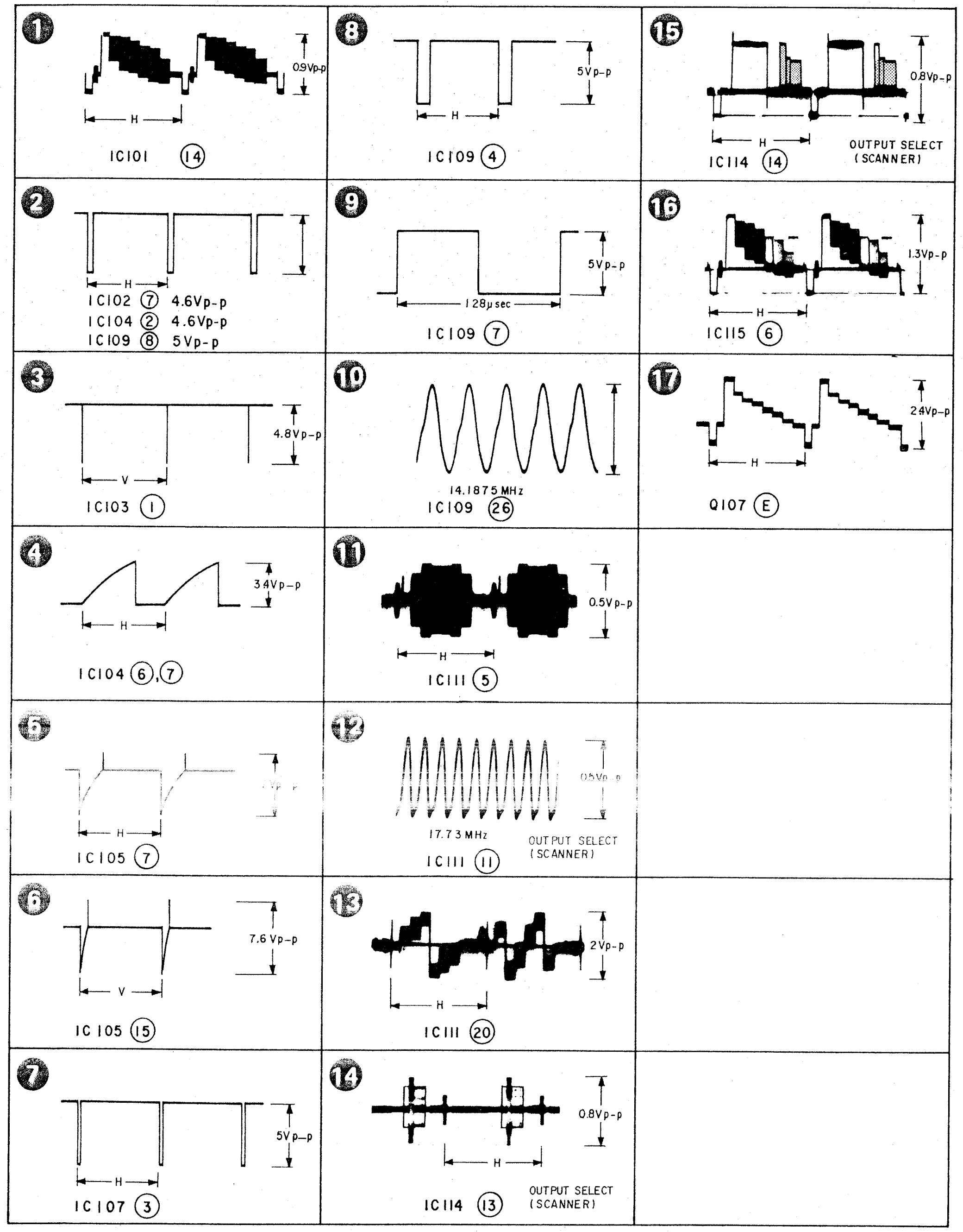
Q101	B-4
Q102	B-3
Q103	C-4
Q104	C-4
Q105	B-5
Q106	C-5
Q107	C-5
Q108	B-5
Q109	B-7
Q110	I-5
Q111	I-9
Q112	C-4
Q113	I-7
Q114	H-7
Q115	G-6
Q116	F-6
Q117	F-7
Q118	F-8
Q119	G-8
Q120	G-9
Q121	G-11
Q122	G-11
Q123	G-10
Q124	D-10
Q125	C-9
Q130	D-9
Q131	D-9
Q132	E-9
Q133	E-10
Q134	D-10
Q135	G-12
Q136	E-12
Q137	E-12
Q138	F-11
Q139	F-11
Q140	F-11
Q141	F-10
Q142	E-11
Q143	C-7
Q144	E-13
Q145	F-12
Q301	E-4
Q302	D-8
Q303	E-1
Q304	E-2
Q305	E-5
Q306	E-2
Q401	B-3
Q402	B-2
Q403	B-3
Q501	B-9
Q502	B-10
RV101	G-12
RV102	I-11
RV103	H-9
RV104	I-11
RV105	G-10
RV106	G-10
RV108	C-10
RV109	D-10
RV110	G-7
RV501	B-11
RV502	B-12
RV503	B-12
TP202	I-4
TP204	G-8
TP206	G-6
TP207	F-8
TP208	I-8
TP212	D-9
TP216	E-10
TP217	I-10
TP220	I-8
TP221	I-5
TP222	H-4
TP223	E-10
TP401	B-3
TP402	B-3
TP403	A-8
TP501	A-10
TP502	A-12
TP503	A-10

MM-005 (

— Ref. No.

MM-005
BOARD
(CONDUCTOR SI

- WAVEFORM MODE
  OUTPUT SELECT .. SUPERIMPOSE
  (⑫, ⑭, ⑮ are in SCANNER mode.)

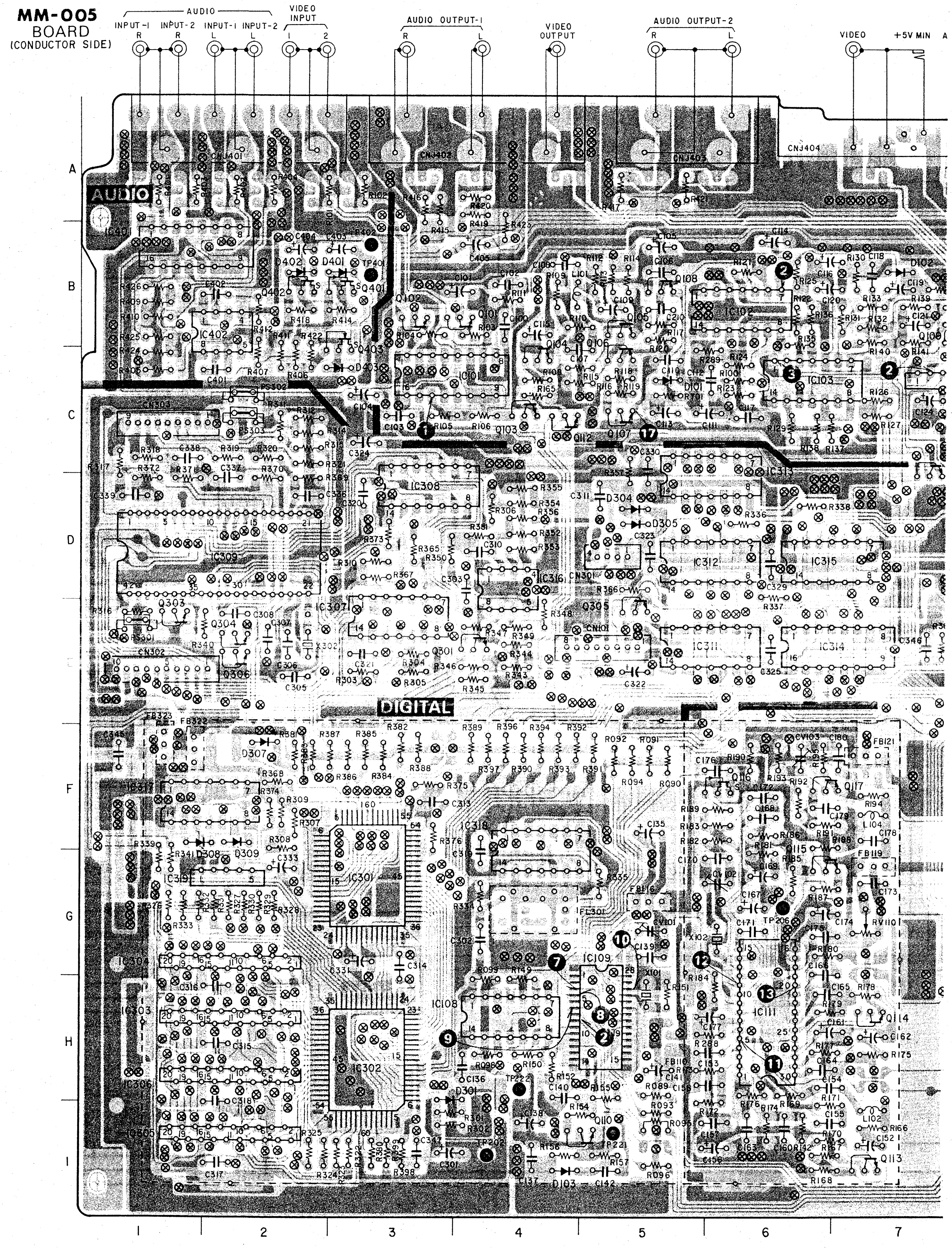


MM-005 BOARD

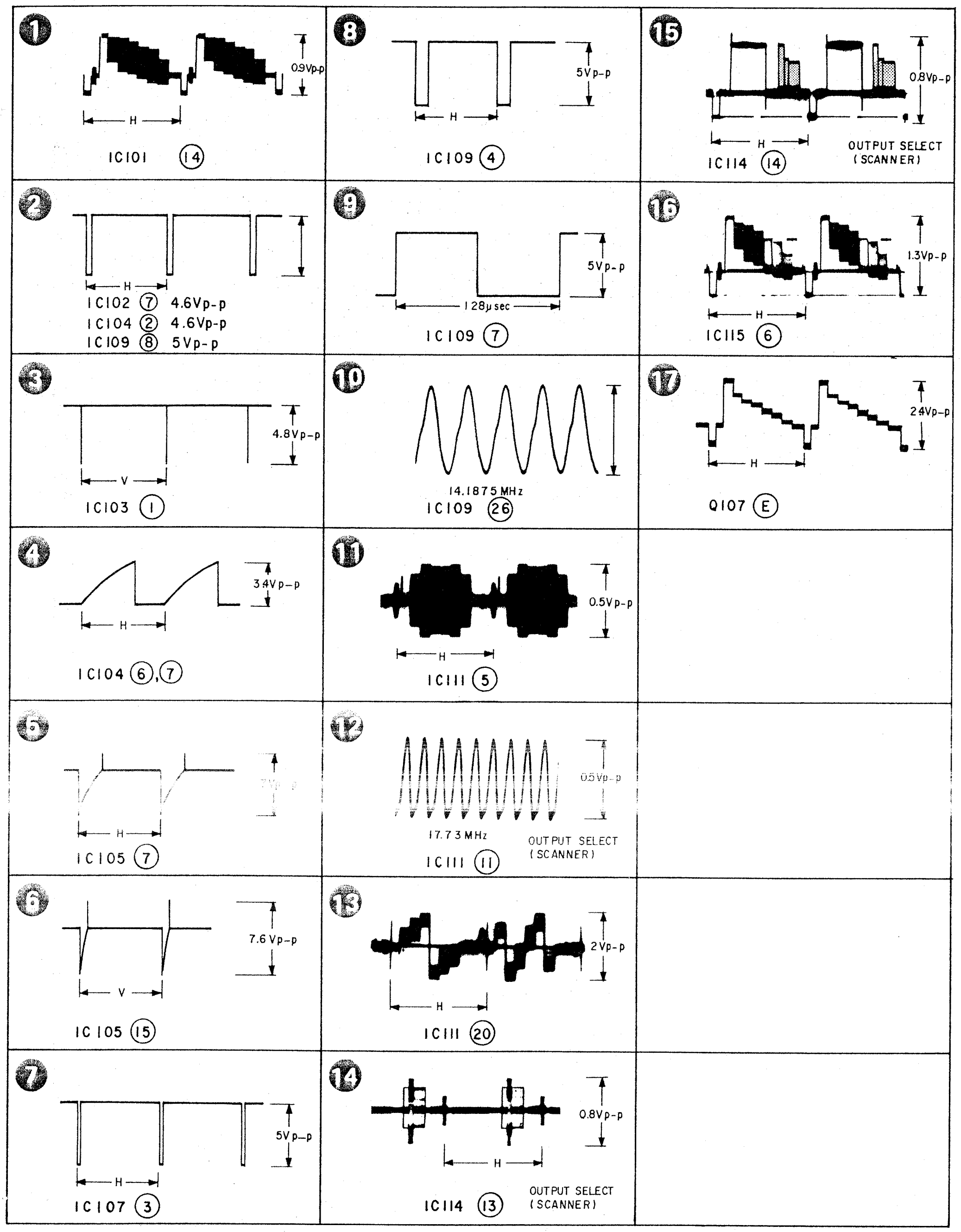
CN101	E-5
CN301	D-5
CN302	E-1
CN303	C-1
CN501	E-12
CN502	A-12
CN503	A-11
CN504	B-11
CV101	G-5
CV102	G-6
CV103	F-6
D101	C-5
D102	B-7
D103	I-4
D104	F-9
D105	F-11
D106	E-11
D107	C-9
D301	H-4
D304	D-5
D305	D-5
D307	F-2
D308	F-1
D309	F-2
D401	B-3
D402	B-2
D403	C-3
D501	D-11
D502	D-11
D503	D-11
D504	D-12
D505	C-12
D506	B-9
D507	B-11
D508	B-11
D509	A-12
D510	B-11
D511	B-12
D512	A-11
D513	B-12
IC101	C-3
IC102	B-6
IC103	C-6
IC104	C-8
IC105	H-12
IC106	I-12
IC107	H-8
IC108	H-4
IC109	G-5
IC110	H-10
IC111	H-6
IC112	F-9
IC113	G-9
IC114	G-11
IC115	D-10
IC116	G-13
IC301	G-3
IC302	H-3
IC303	H-1
IC304	G-1
IC305	I-1
IC306	H-1
IC307	E-3
IC308	D-3
IC309	D-2
IC311	E-5
IC312	D-5
IC313	C-6
IC314	E-6
IC315	D-6
IC316	D-4
IC317	F-1
IC318	F-4
IC319	G-2
IC401	B-1
IC402	B-2
IC501	B-12
Q101	B-4
Q102	B-3
Q103	C-4
Q104	C-4
Q105	B-5
Q106	C-5
Q107	C-5
Q108	B-5
Q109	B-7
Q110	I-5
Q111	I-9
Q112	C-4
Q113	I-7
Q114	H-7
Q115	G-6
Q116	F-6
Q117	F-7
Q118	F-8
Q119	G-8
Q120	G-9
Q121	G-11
Q122	G-11
Q123	G-10
Q124	D-10
Q125	C-9
Q130	D-9
Q131	D-9
Q132	E-9
Q133	E-10
Q134	D-10
Q135	G-12
Q136	E-12
Q137	E-12
Q138	F-11
Q139	F-11
Q140	F-11
Q141	F-10
Q142	E-11
Q143	C-7
Q144	E-13
Q145	F-12
Q301	E-4
Q302	D-8
Q303	E-1
Q304	E-2
Q305	E-5
Q306	E-2
Q401	B-3
Q402	B-2
Q403	B-3
Q501	B-9
Q502	B-10
RV101	G-12
RV102	I-11
RV103	H-9
RV104	I-11
RV105	G-10
RV106	G-10
RV108	C-10
RV109	D-10
RV110	G-7
RV501	B-11
RV502	B-12
RV503	B-12
TP202	I-4
TP204	G-8
TP206	G-6
TP207	F-8
TP208	I-8
TP212	D-9
TP216	E-10
TP217	I-10
TP220	I-8
TP221	I-5
TP222	H-4
TP223	E-10
TP401	B-3
TP402	B-3
TP403	A-8
TP501	A-10
TP502	A-12
TP503	A-10

MM-005 (VIDEO BLOCK, DIGITAL BLOLK, POWER BLOCK) PRINTED WIRING BOARD

— Ref. No. MM-005 BOARD: 1000 series —


MM-005 BOARD (CONDUCTOR SIDE)
AUDIO
INPUT-1 R
INPUT-2 R
INPUT-1 L
INPUT-2 L
VIDEO INPUT 1 2
AUDIO OUTPUT-1 R L
VIDEO OUTPUT
AUDIO OUTPUT-2 R L
VIDEO
+5V MIN
CNJ401
CNJ402
CNJ403
CNJ404
AUDIO
DIGITAL
IC101
IC102
IC103
IC109
IC111
IC301
IC302
IC303
IC306
IC307
IC308
IC309
IC311
IC312
IC313
IC314
IC315
IC316
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7

- WAVEFORM MODE
  OUTPUT SELECT . . SUPERIMPOSE
  (⑫ , ⑭ , ⑮ are in SCANNER mode.)



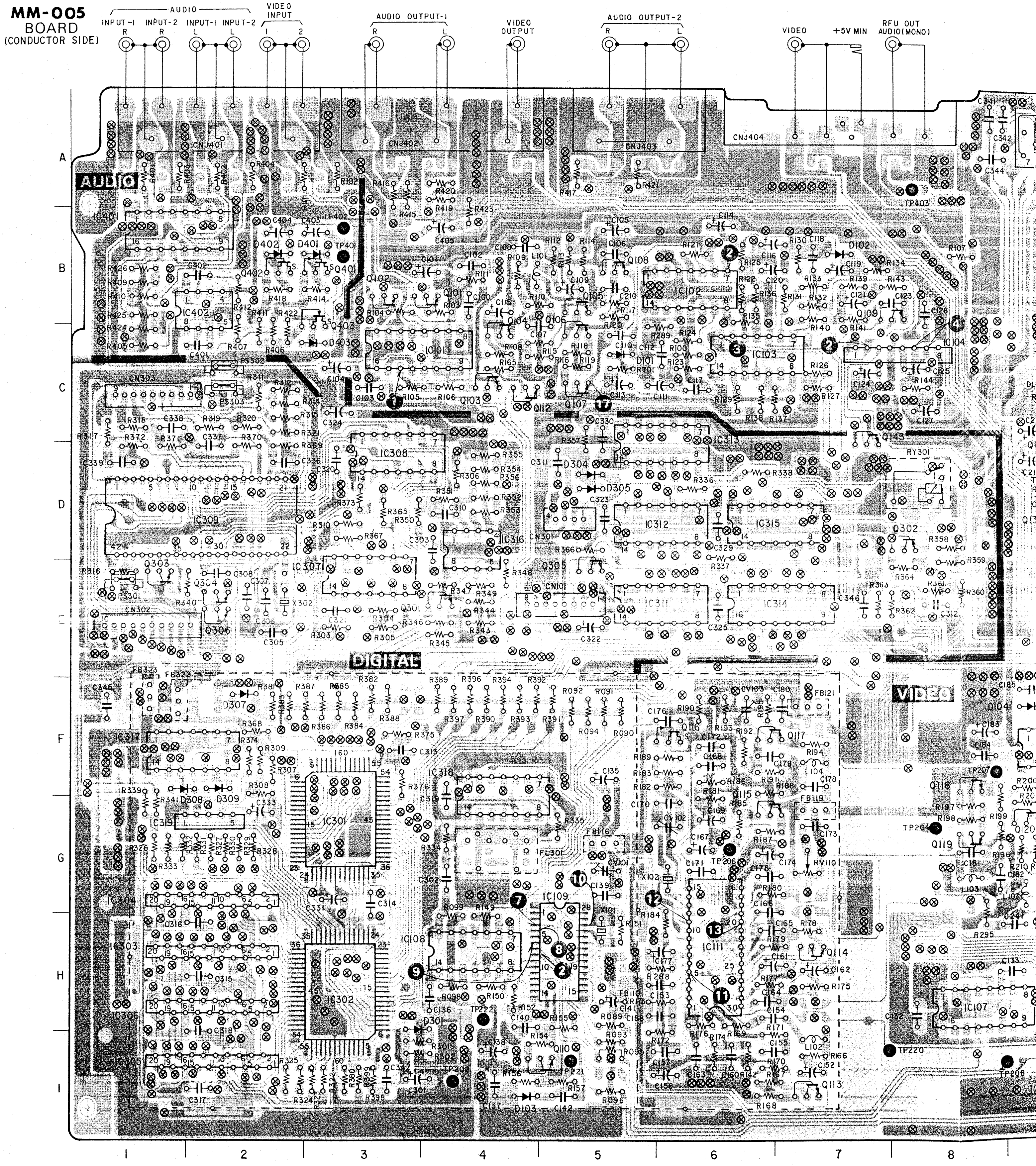
MM-005 BOARD

CN101	E-5
CN301	D-5
CN302	E-1
CN303	C-1
CN501	E-12
CN502	A-12
CN503	A-11
CN504	B-11
CV101	G-5
CV102	G-6
CV103	F-6
D101	C-5
D102	B-7
D103	I-4
D104	F-9
D105	F-11
D106	E-11
D107	C-9
D301	H-4
D304	D-5
D305	D-5
D307	F-2
D308	F-1
D309	F-2
D401	B-3
D402	B-2
D403	C-3
D501	D-11
D502	D-11
D503	D-11
D504	D-12
D505	C-12
D506	B-9
D507	B-11
D508	B-11
D509	A-12
D510	B-11
D511	B-12
D512	A-11
D513	B-12
IC101	C-3
IC102	B-6
IC103	C-6
IC104	C-8
IC105	H-12
IC106	I-12
IC107	H-8
IC108	H-4
IC109	G-5
IC110	H-10
IC111	H-6
IC112	F-9
IC113	G-9
IC114	G-11
IC115	D-10
IC116	G-13
IC301	G-3
IC302	H-3
IC303	H-1
IC304	G-1
IC305	I-1
IC306	H-1
IC307	E-3
IC308	D-3
IC309	D-2
IC311	E-5
IC312	D-5
IC313	C-6
IC314	E-6
IC315	D-6
IC316	D-4
IC317	F-1
IC318	F-4
IC319	G-2
IC401	B-1
IC402	B-2
IC501	B-12
Q101	B-4
Q102	B-3
Q103	C-4
Q104	C-4
Q105	B-5
Q106	C-5
Q107	C-5
Q108	B-5
Q109	B-7
Q110	I-5
Q111	I-9
Q112	C-4
Q113	I-7
Q114	H-7
Q115	G-6
Q116	F-6
Q117	F-7
Q118	F-8
Q119	G-8
Q120	G-9
Q121	G-11
Q122	G-11
Q123	G-10
Q124	D-10
Q125	C-9
Q130	D-9
Q131	D-9
Q132	E-9
Q133	E-10
Q134	D-10
Q135	G-12
Q136	E-12
Q137	E-12
Q138	F-11
Q139	F-11
Q140	F-11
Q141	F-10
Q142	E-11
Q143	C-7
Q144	E-13
Q145	F-12
Q301	E-4
Q302	D-8
Q303	E-1
Q304	E-2
Q305	E-5
Q306	E-2
Q401	B-3
Q402	B-2
Q403	B-3
Q501	B-9
Q502	B-10
RV101	G-12
RV102	I-11
RV103	H-9
RV104	I-11
RV105	G-10
RV106	G-10
RV108	C-10
RV109	D-10
RV110	G-7
RV501	B-11
RV502	B-12
RV503	B-12
TP202	I-4
TP204	G-8
TP206	G-6
TP207	F-8
TP208	I-8
TP212	D-9
TP216	E-10
TP217	I-10
TP220	I-8
TP221	I-5
TP222	H-4
TP223	E-10
TP401	B-3
TP402	B-3
TP403	A-8
TP501	A-10
TP502	A-12
TP503	A-10

MM-005 (VIDEO BLOCK, DIGITAL BLOLK, POWER BLOCK) PRINTED WIRING BOARD

— Ref. No. MM-005 BOARD: 1000 series —

MM-005 BOARD (CONDUCTOR SIDE)


AUDIO
INPUT-1
INPUT-2
INPUT-1
INPUT-2
R
L
VIDEO INPUT
1
2
AUDIO OUTPUT-1
VIDEO OUTPUT
AUDIO OUTPUT-2
VIDEO
+5V MIN
RFU OUT AUDIO(MONO)
CNJ401
CNJ402
CNJ403
CNJ404
AUDIO
DIGITAL
VIDEO
IC101
IC102
IC103
IC104
IC107
IC108
IC109
IC111
IC301
IC302
IC303
IC305
IC306
IC307
IC308
IC309
IC311
IC312
IC313
IC314
IC315
IC316
IC317
IC318
IC401
IC402
CN301
CN302
CN303
RY301
TP401
TP402
TP403
TP202
TP206
TP207
TP220
TP221
TP222
A
B
C
D
E
F
G
H
I
1
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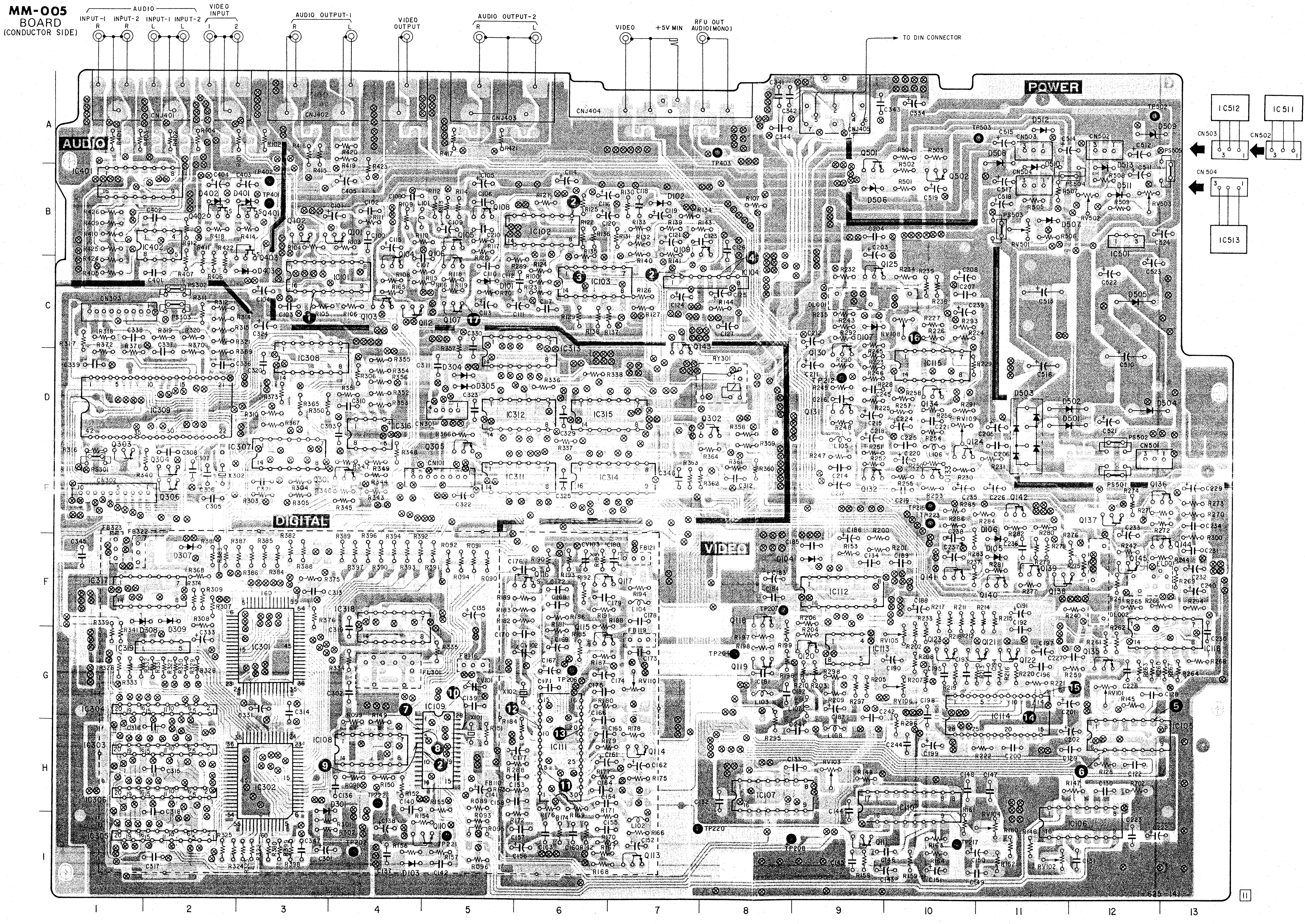
8

MM-005 (VIDEO BLOCK, DIGITAL BLOLK, POWER BLOCK) PRINTED WIRING BOARD

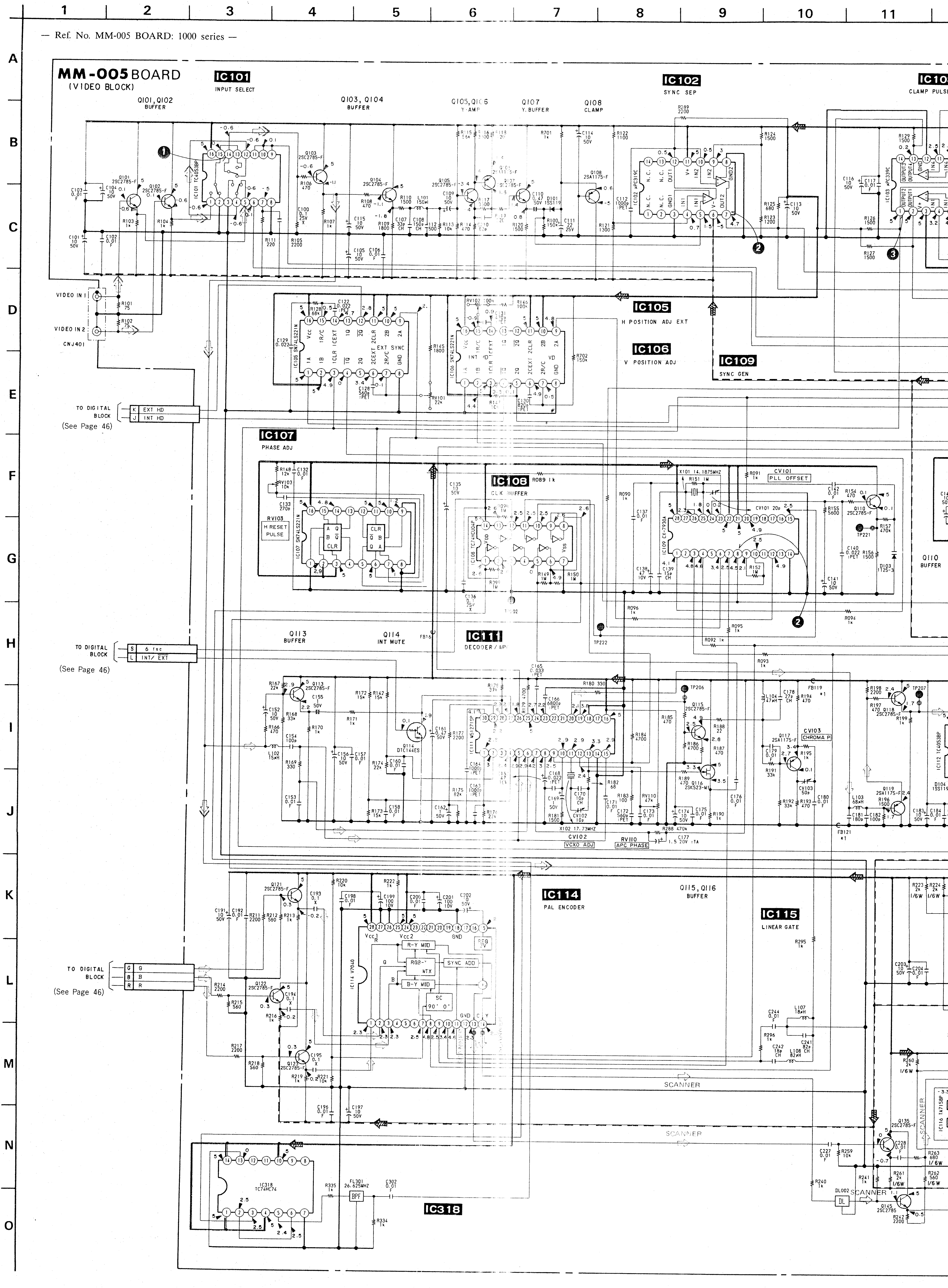
— Ref. No. MM-005 BOARD: 1000 series —

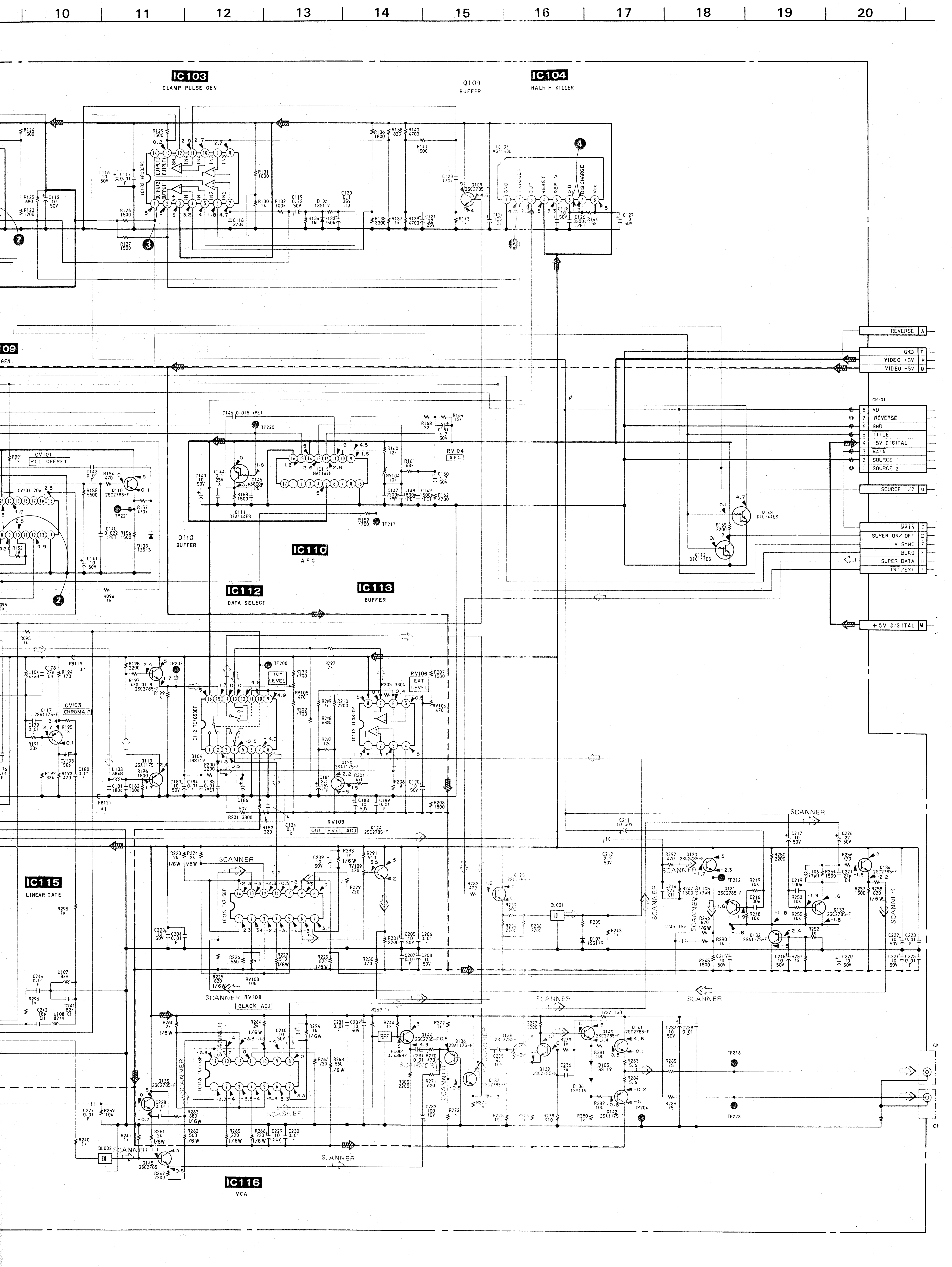
Q101	B-4
Q102	B-3
Q103	C-4
Q104	C-4
Q105	B-5
Q106	C-5
Q107	C-5
Q108	B-5
Q109	B-7
Q110	I-5
Q111	I-9
Q112	C-4
Q113	I-7
Q114	H-7
Q115	G-6
Q116	F-6
Q117	F-7
Q118	F-8
Q119	G-8
Q120	G-9
Q121	G-11
Q122	G-11
Q123	G-10
Q124	D-10
Q125	C-9
Q130	D-9
Q131	D-9
Q132	E-9
Q133	E-10
Q134	D-10
Q135	G-12
Q136	E-12
Q137	E-12
Q138	F-11
Q139	F-11
Q140	F-11
Q141	F-10
Q142	E-11
Q143	C-7
Q144	E-13
Q145	F-12
Q301	E-4
Q302	D-8
Q303	E-1
Q304	E-2
Q305	E-5
Q306	E-2
Q401	B-3
Q402	B-2
Q403	B-3
Q501	B-9
Q502	B-10
RV101	G-12
RV102	I-11
RV103	H-9
RV104	I-11
RV105	G-10
RV106	G-10
RV108	C-10
RV109	D-10
RV110	G-7
RV501	B-11
RV502	B-12
RV503	B-12
TP202	I-4
TP204	G-8
TP206	G-6
TP207	F-8
TP208	I-8
TP212	D-9
TP216	E-10
TP217	I-10
TP220	I-8
TP221	I-5
TP222	H-4
TP223	E-10
TP401	B-3
TP402	B-3
TP403	A-8
TP501	A-10
TP502	A-12
TP503	A-10

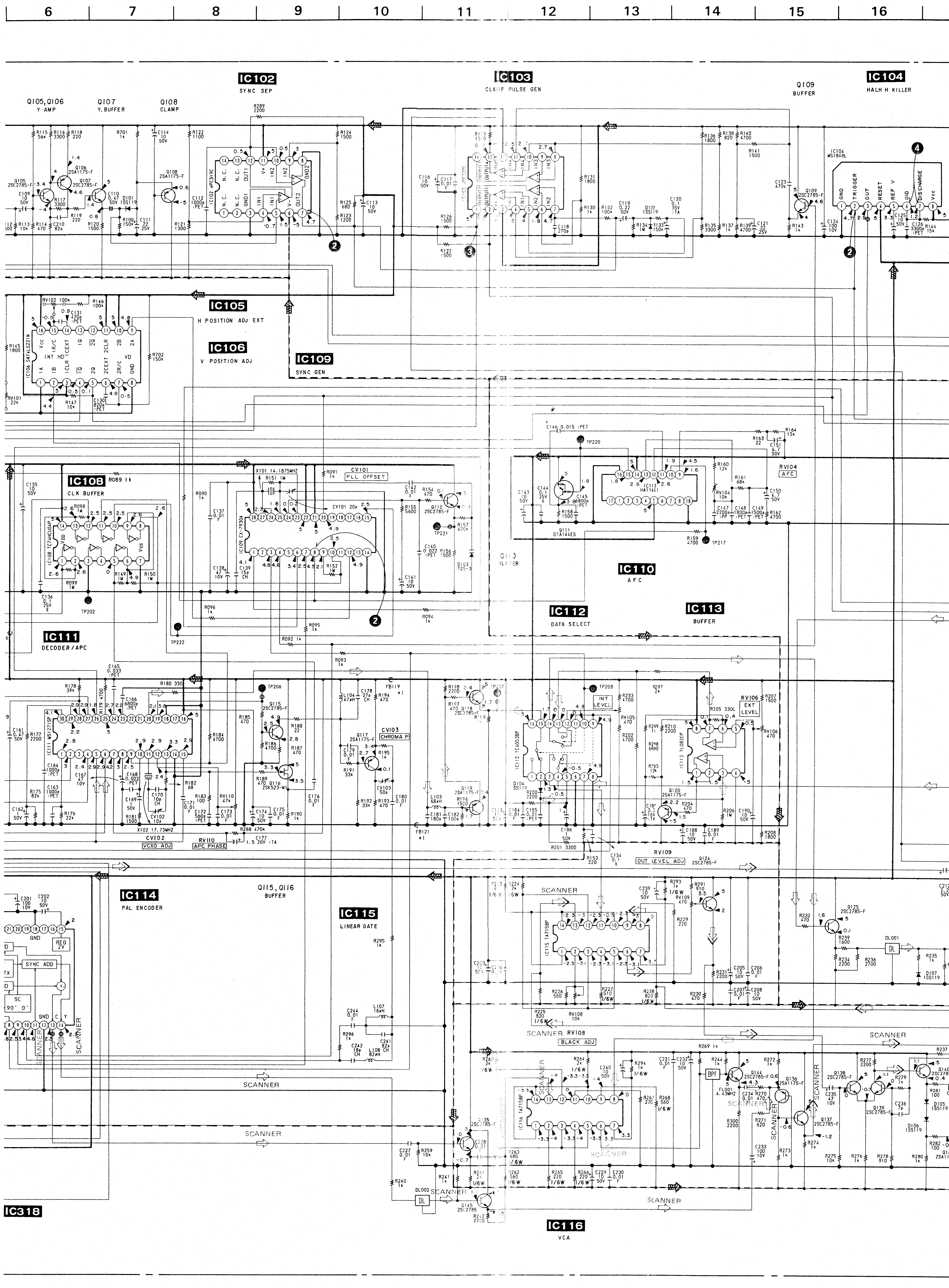

MM-005
BOARD
(CONDUCTOR SIDE)
AUDIO
INPUT-1
INPUT-2
R
L
VIDEO INPUT
1
2
AUDIO OUTPUT-1
VIDEO OUTPUT
AUDIO OUTPUT-2
VIDEO
+5V MIN
RFU OUT AUDIO(MONO)
TO DIN CONNECTOR
AUDIO
POWER
DIGITAL
VIDEO
IC512
IC511
IC513
CN503
CN502
CN504
CNJ401
CNJ402
CNJ403
CNJ404
CNJ405
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
13

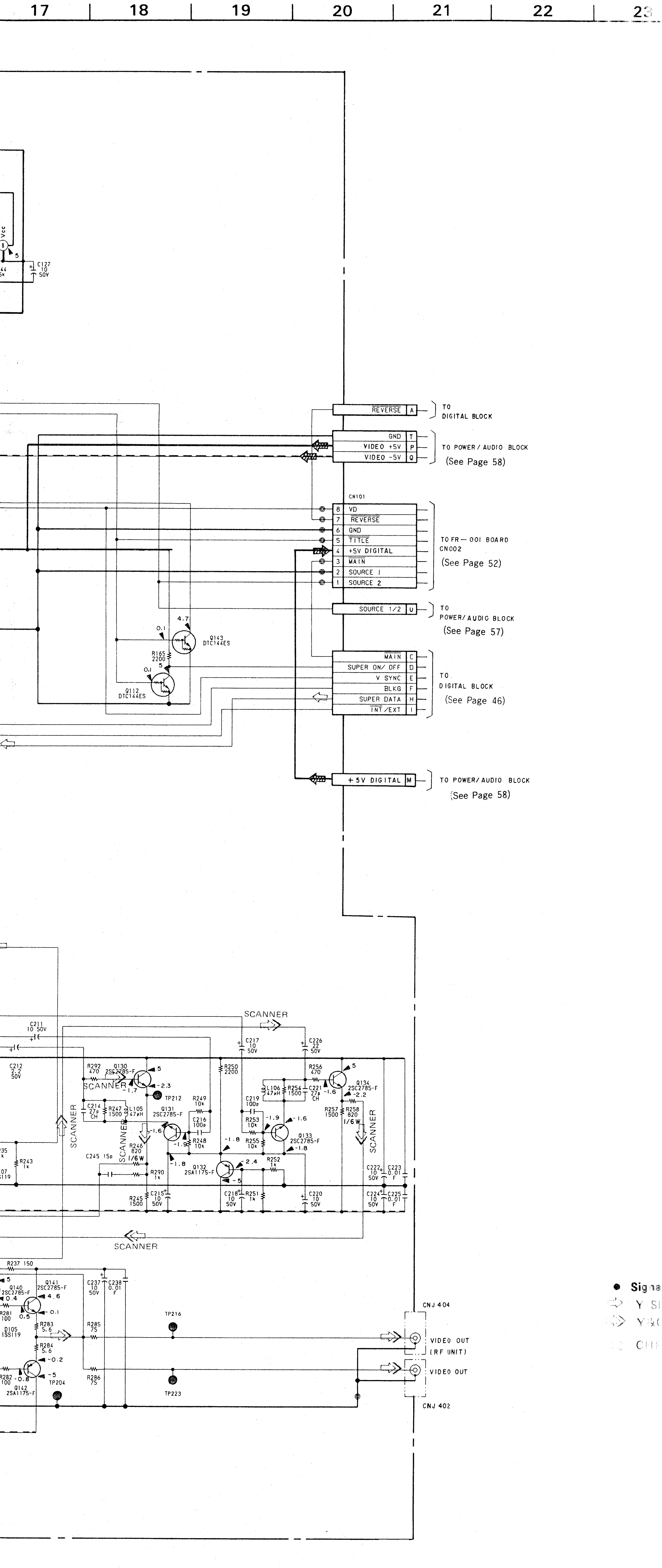
MM-005 (VIDEO BLOCK) SCHEMATIC DIAGRAM

— Ref. No. MM-005 BOARD: 1000 series —


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
MM-005 BOARD
(VIDEO BLOCK)
IC101
INPUT SELECT
Q101, Q102
BUFFER
Q103, Q104
BUFFER
Q105, Q106
Y-AMP
Q107
Y. BUFFER
Q108
CLAMP
IC102
SYNC SEP
IC103
CLAMP PULSE
VIDEO IN 1
VIDEO IN 2
CNJ401
IC105
H POSITION ADJ EXT
IC106
V POSITION ADJ
IC109
SYNC GEN
TO DIGITAL BLOCK
(See Page 46)
EXT HD
INT HD
IC107
PHASE ADJ
RV103
H RESET PULSE
IC108
CLK BUFFER
X101 14.1875MHZ
CV101
PLL OFFSET
Q110
BUFFER
Q113
BUFFER
Q114
INT MUTE
IC111
DECODER / 4P
6 fsc
INT/ EXT
CV103
CHROMA P
X102 17.73MHZ
CV102
VCXO ADJ
RV110
APC PHASE
IC114
PAL ENCODER
Q115, Q116
BUFFER
IC115
LINEAR GATE
G
B
R
R-Y MOD
RGB-Y MTX
B-Y MOD
SYNC ADD
SC 90° 0°
SCANNER
IC318
IC318 1C74HC74
FL301 26.625MHZ
BPF
DL002
IC116
Q135
Q145


10
11
12
13
14
15
16
17
18
19
20
IC103
CLAMP PULSE GEN
Q109
BUFFER
IC104
HALH H KILLER
GND
TRIGGER
OUT
RESET
REF V
Q10
DISCHARGE
Vcc
REVERSE A
GND T
VIDEO +5V P
VIDEO -5V Q
CN101
8 VD
7 REVERSE
6 GND
5 TITLE
4 +5V DIGITAL
3 MAIN
2 SOURCE 1
1 SOURCE 2
SOURCE 1/2 U
MAIN C
SUPER ON/ OFF D
V SYNC E
BLKG F
SUPER DATA H
INT/EXT I
+5V DIGITAL M
CV101
PLL OFFSET
RV104
AFC
Q110
BUFFER
IC110
AFC
IC112
DATA SELECT
IC113
BUFFER
INT LEVEL
RV106
EXT LEVEL
CV103
CHROMA P
RV109
OUT LEVEL ADJ
IC115
LINEAR GATE
SCANNER
RV108
BLACK ADJ
BPF
DL001
DL002
IC116
VCA
TP216
TP223


6
7
8
9
10
11
12
13
14
15
16
IC102
SYNC SEP
IC103
CLAMP PULSE GEN
Q109
BUFFER
IC104
HALH H KILLER
Q105,Q106
Y-AMP
Q107
Y. BUFFER
Q108
CLAMP
IC105
H POSITION ADJ EXT
IC106
V POSITION ADJ
IC109
SYNC GEN
IC108
CLK BUFFER
CV101
PLL OFFSET
IC110
AFC
RV104
AFC
IC112
DATA SELECT
IC113
BUFFER
IC111
DECODER/APC
CV103
CHROMA P
CV102
VCXO ADJ
RV110
APC PHASE
RV106
EXT LEVEL
INT LEVEL
RV109
OUT LEVEL ADJ
IC114
PAL ENCODER
Q115,Q116
BUFFER
IC115
LINEAR GATE
SCANNER
RV108
BLACK ADJ
SYNC ADD
REG 2V
SC 90° 0°
GND
IC318
IC116
VCA
DL001
DL002
BPF
TP202
TP206
TP208
TP217
TP220
TP221
TP222

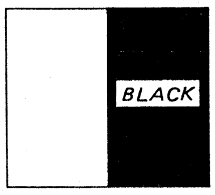

17
18
19
20
21
22
23
C127
10
50V
REVERSE A
TO DIGITAL BLOCK
GND T
VIDEO +5V P
VIDEO -5V Q
TO POWER/AUDIO BLOCK
(See Page 58)
CN101
8 VD
7 REVERSE
6 GND
5 TITLE
4 +5V DIGITAL
3 MAIN
2 SOURCE 1
1 SOURCE 2
TO FR-001 BOARD CN002
(See Page 52)
SOURCE 1/2 U
TO POWER/AUDIO BLOCK
(See Page 57)
4.7
0.1
Q143
DTC144ES
R165
2200
5
0.1
Q112
DTC144ES
MAIN C
SUPER ON/OFF D
V SYNC E
BLKG F
SUPER DATA H
INT/EXT I
TO DIGITAL BLOCK
(See Page 46)
+5V DIGITAL M
TO POWER/AUDIO BLOCK
(See Page 58)
SCANNER
C211
10 50V
C212
2.2
50V
C217
10
50V
C226
22
50V
R292
470
Q130
2SC2785-F
5
-2.3
-1.7
TP212
R250
2200
R256
470
5
Q134
2SC2785-F
-2.2
-1.6
L106
47μH
R254
1500
C221
27p
CH
C214
27p
CH
R247
1500
L105
47μH
Q131
2SC2785-F
R249
10k
C216
100p
C219
100p
R253
10k
-1.9
-1.6
Q133
2SC2785-F
R257
1500
R258
820
1/6W
-1.6
-1.9
R248
10k
-1.8
R255
10k
-1.8
R246
820
1/6W
C245 15p
R243
1k
R290
1k
-1.8
Q132
2SA1175-F
-2.4
R252
1k
-5
C222
10
50V
C223
0.01
F
R245
1500
C215
10
50V
C218
10
50V
R251
1k
C220
10
50V
C224
10
50V
C225
0.01
F
SCANNER
R237 150
5
Q140
2SC2785-F
0.4
Q141
2SC2785-F
4.6
-0.1
0.5
R281
100
D105
1SS119
R283
5.6
R284
5.6
-0.2
-5
R282
100
-0.8
Q142
2SA1175-F
TP204
C237
10
50V
C238
0.01
F
R285
75
R286
75
TP216
TP223
CNJ 404
VIDEO OUT
(RF UNIT)
VIDEO OUT
CNJ 402

Note (Schematic Diagram)

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ☐ : panel disignation.
- ☐ : adjustment for repair.
- ▬ : B + line.
- ╍ : B – line.
- ⇨ : Flowing direction of B +, – lines.
- MEASURING CONDITION OF VOLTAGE VALUE AND WAVE FORM
  - VOLTAGE ARE DC WITH RESPECT TO GROUND UNLESS OTHERWISE NOTED.
  - READINGS ARE TAKEN WITH SCANNER TO B/W PATTERN SIGNAL INPUT.
  - READING ARE TAKEN WITH A DIGITAL MULTIMETER (DC 10 MΩ).
- Unless otherwise specified, voltages and waveforms are measured with the following conditons.

  COLOUR SELECT knob : BLACK
  INPUT SELECT button : 1
  OUTPUT SELECT button : SUPERIMPOSE

  Input colour-bar signal to INPUT 1.
  Read in Fig.-1 with scanner.



Monitor screen

Fig.-1

Note: Read in to make black about half of the monitor screen.

When indicating parts by reference number, please include the board name.

- **Signal path**

⇨ Y SIGNAL

⇨ Y&CHROMA SIGNAL

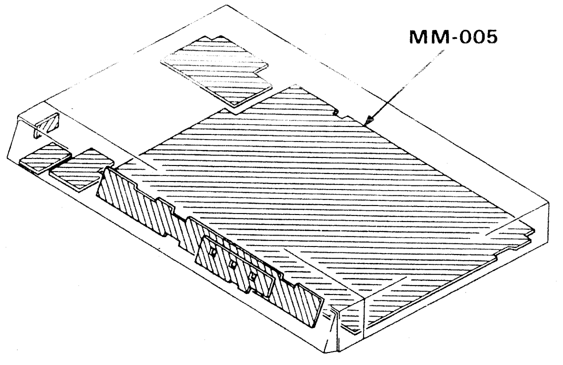
⇨ CHROMA SIGNAL

MM-005 (VIDEO BLOCK, DIGITAL BLOLK, POWER BLOCK) PRINTED WIRING BOARD

— Ref. No. MM-005 BOARD: 1000 series —

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- Digital transistor (MM-005: Q111, 112, 114, 143, 305) transistor with resistors.
  Refer to the MM-005 board schematic diagram for digital transistor.

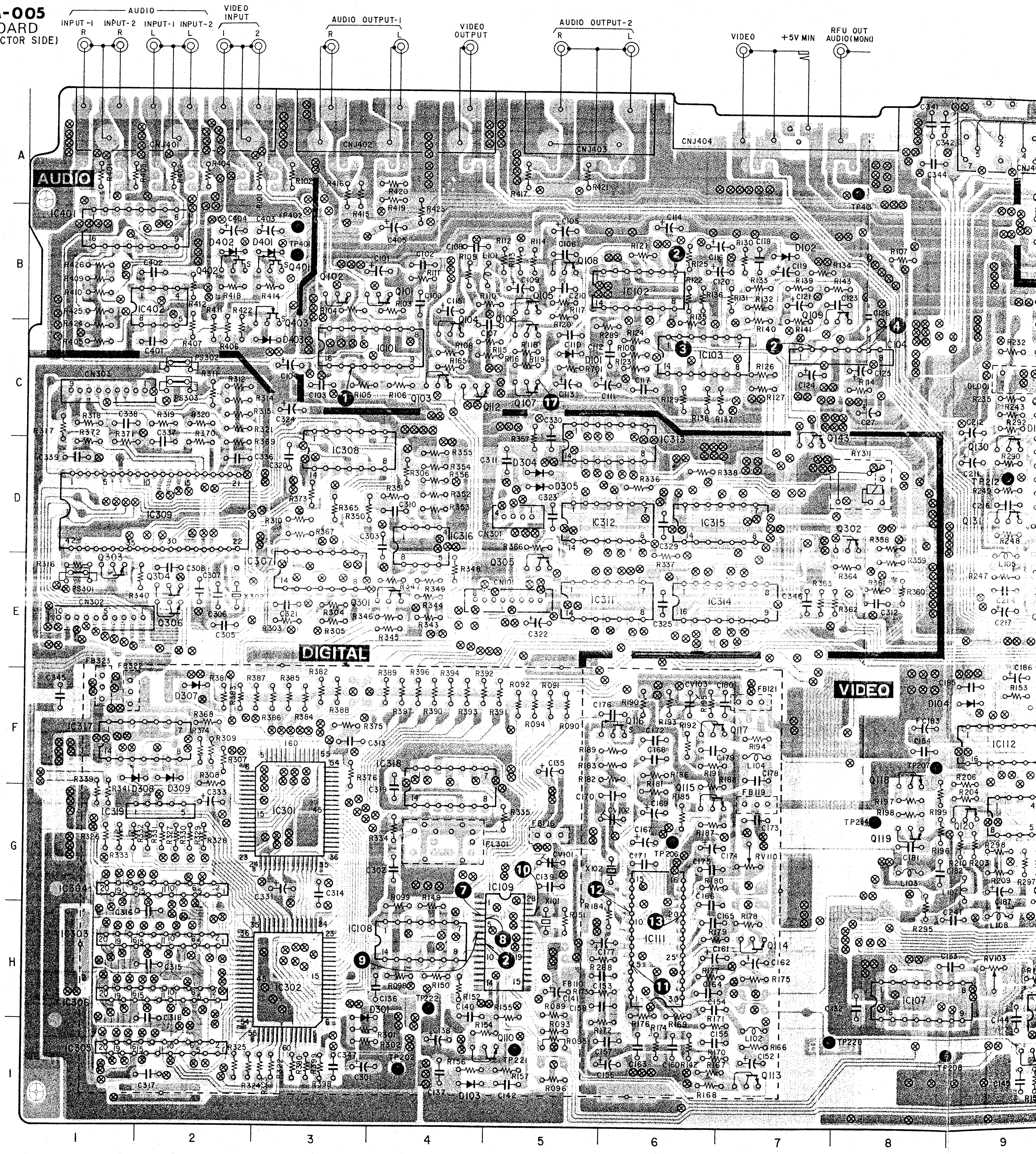


MM-005 BOARD

CN101	E-5
CN301	D-5
CN302	E-1
CN303	C-1
CN501	E-12
CN502	A-12
CN503	A-11
CN504	B-11
CV101	G-5
CV102	G-6
CV103	F-6
D101	C-5
D102	B-7
D103	I-4
D104	F-9
D105	F-11
D106	E-11
D107	C-9
D301	H-4
D304	D-5
D305	D-5
D307	F-2
D308	F-1
D309	F-2
D401	B-3
D402	B-2
D403	C-3
D501	D-11
D502	D-11
D503	D-11
D504	D-12
D505	C-12
D506	B-9
D507	B-11
D508	B-11
D509	A-12
D510	B-11
D511	B-12
D512	A-11
D513	B-12
IC101	C-3
IC102	B-6
IC103	C-6
IC104	C-8
IC105	H-12
IC106	I-12
IC107	H-8
IC108	H-4
IC109	G-5
IC110	H-10
IC111	H-6
IC112	F-9
IC113	G-9
IC114	G-11
IC115	D-10
IC116	G-13
IC301	G-3
IC302	H-3
IC303	H-1
IC304	G-1
IC305	I-1
IC306	H-1
IC307	E-3
IC308	D-3
IC309	D-2
IC311	E-5
IC312	D-5
IC313	C-6
IC314	E-6
IC315	D-6
IC316	D-4
IC317	F-1
IC318	F-4
IC319	G-2
IC401	B-1
IC402	B-2
IC501	B-12

Q101	B-4
Q102	B-3
Q103	C-4
Q104	C-4
Q105	B-5
Q106	C-5
Q107	C-5
Q108	B-5
Q109	B-7
Q110	I-5
Q111	I-9
Q112	C-4
Q113	I-7
Q114	H-7
Q115	G-6
Q116	F-6
Q117	F-7
Q118	F-8
Q119	G-8
Q120	G-9
Q121	G-11
Q122	G-11
Q123	G-10
Q124	D-10
Q125	C-9
Q130	D-9
Q131	D-9
Q132	E-9
Q133	E-10
Q134	D-10
Q135	G-12
Q136	E-12
Q137	E-12
Q138	F-11
Q139	F-11
Q140	F-11
Q141	F-10
Q142	E-11
Q143	C-7
Q144	E-13
Q145	F-12
Q301	E-4
Q302	D-8
Q303	E-1
Q304	E-2
Q305	E-5
Q306	E-2
Q401	B-3
Q402	B-2
Q403	B-3
Q501	B-9
Q502	B-10
RV101	G-12
RV102	I-11
RV103	H-9
RV104	I-11
RV105	G-10
RV106	G-10
RV108	C-10
RV109	D-10
RV110	G-7
RV501	B-11
RV502	B-12
RV503	B-12
TP202	I-4
TP204	G-8
TP206	G-6
TP207	F-8
TP208	I-8
TP212	D-9
TP216	E-10
TP217	I-10
TP220	I-8
TP221	I-5
TP222	H-4
TP223	E-10
TP401	B-3
TP402	B-3
TP403	A-8
TP501	A-10
TP502	A-12
TP503	A-10

MM-005 BOARD (CONDUCTOR SIDE)

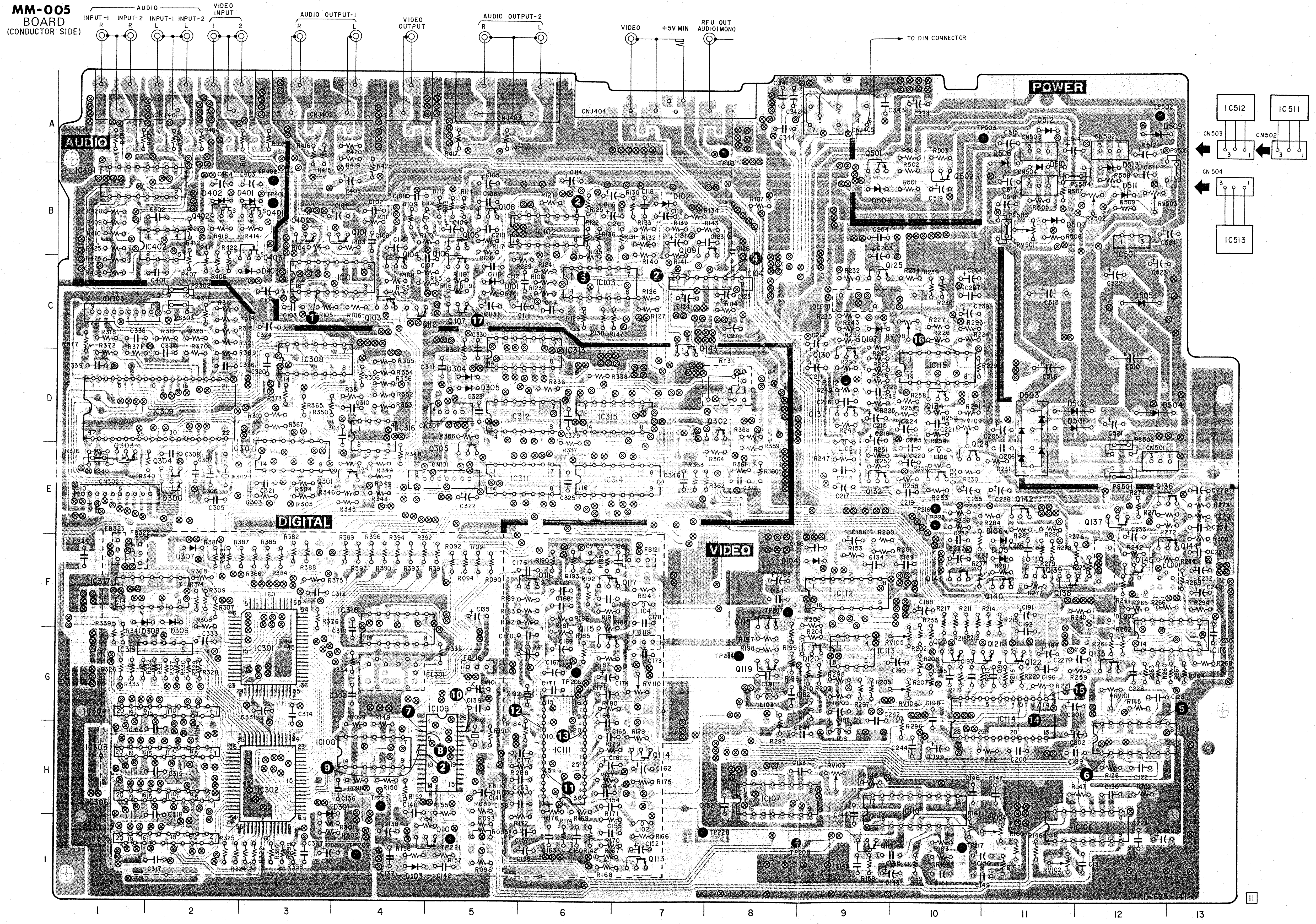


DIGITAL DIGITAL

LOCK, DIGITAL BLOLK, POWER BLOCK) PRINTED WIRING BOARD

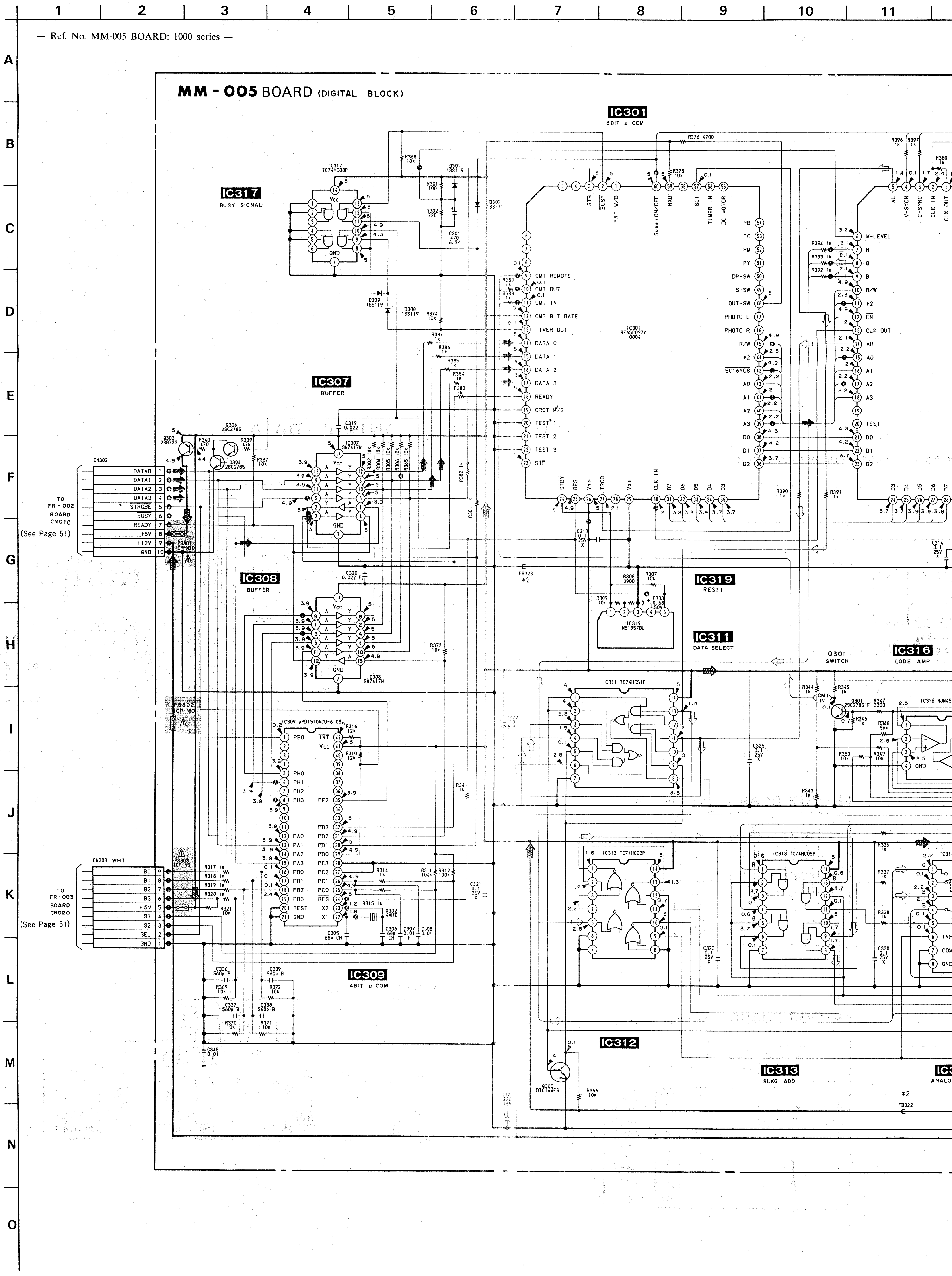
ARD: 1000 series —

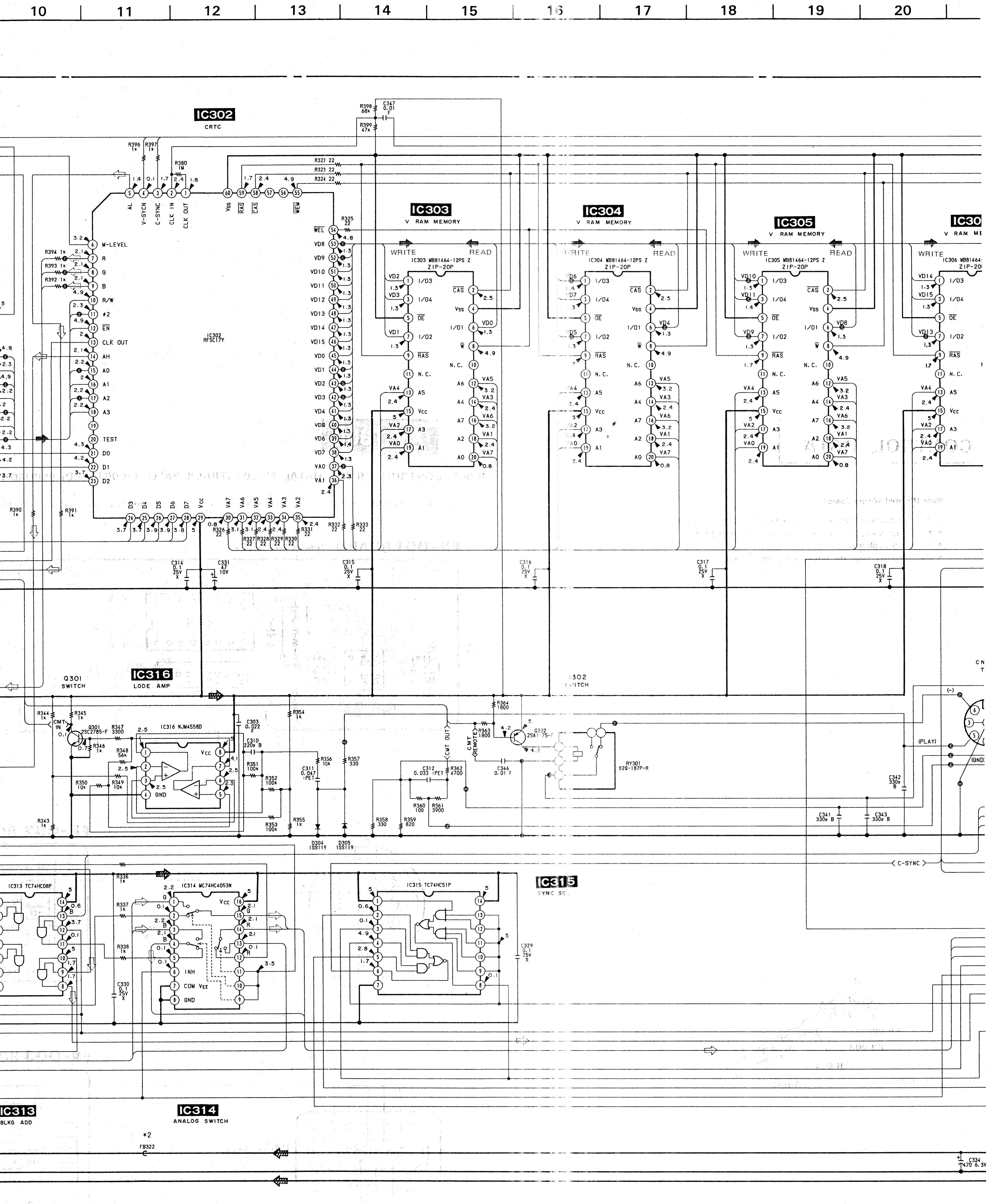
101	B-4
102	B-3
103	C-4
104	C-4
105	B-5
106	C-5
107	C-5
108	B-5
109	B-7
110	I-5
111	I-9
112	C-4
113	I-7
114	H-7
115	G-6
116	F-6
117	F-7
118	F-8
119	G-8
120	G-9
121	G-11
122	G-11
123	G-10
124	D-10
125	C-9
130	D-9
131	D-9
132	E-9
133	E-10
134	D-10
35	G-12
36	E-12
37	E-12
38	F-11
39	F-11
40	F-11
41	F-10
42	E-11
43	C-7
44	E-13
45	F-12
01	E-4
02	D-8
03	E-1
04	E-2
05	E-5
06	E-2
01	B-3
02	B-2
03	B-3
01	B-9
02	B-10
101	G-12
102	I-11
103	H-9
104	I-11
105	G-10
106	G-10
108	C-10
109	D-10
110	G-7
501	B-11
502	B-12
503	B-12
202	I-4
204	G-8
206	G-6
207	F-8
208	I-8
212	D-9
216	E-10
217	I-10
220	I-8
221	I-5
222	H-4
223	E-10
401	B-3
402	B-3
403	A-8
501	A-10
502	A-12
503	A-10

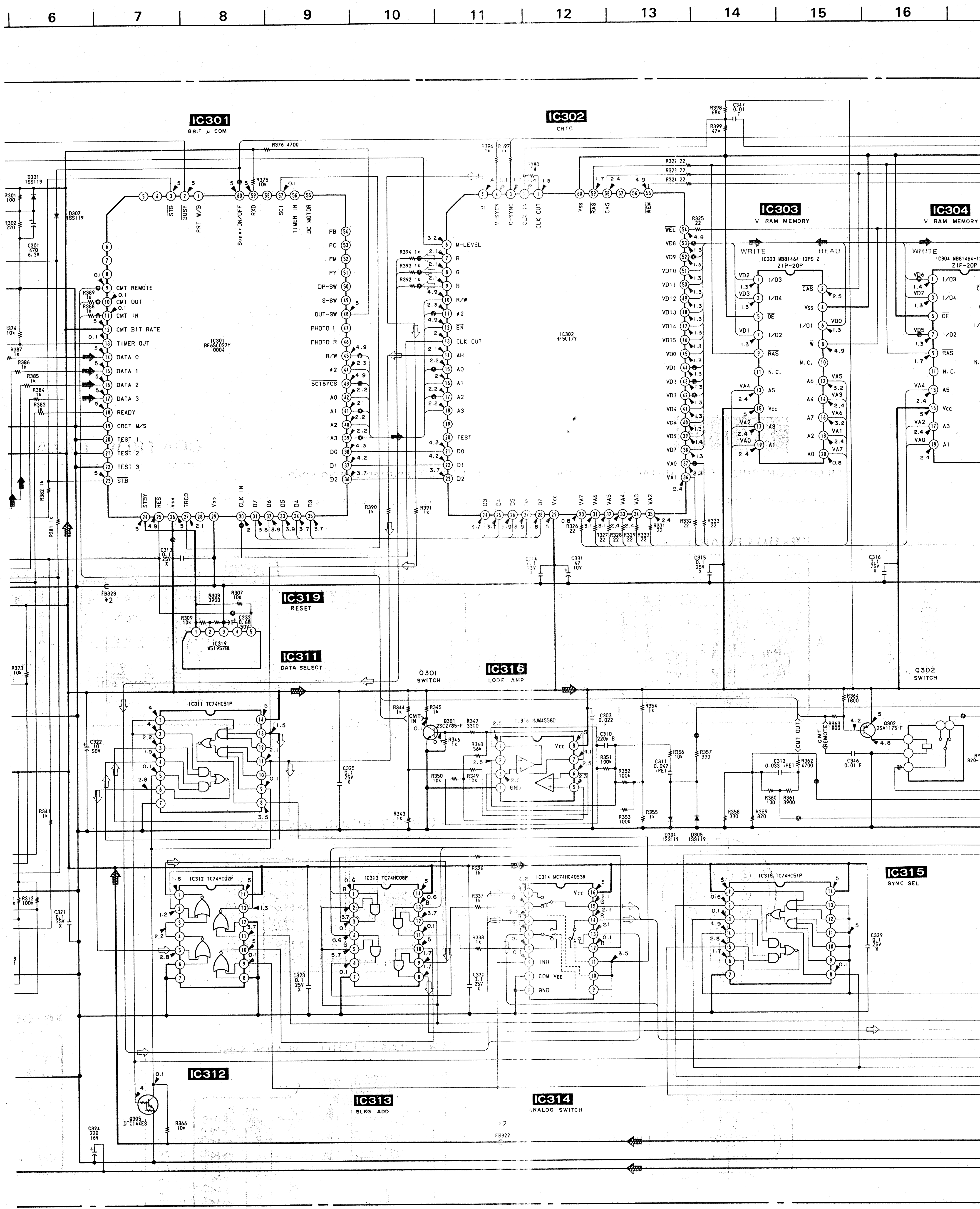

MM-005
BOARD
(CONDUCTOR SIDE)
AUDIO
INPUT-1
INPUT-2
INPUT-1
INPUT-2
R
R
L
L
VIDEO INPUT
1
2
AUDIO OUTPUT-1
R
L
VIDEO OUTPUT
AUDIO OUTPUT-2
R
L
VIDEO
+5V MIN
RFU OUT AUDIO(MONO)
TO DIN CONNECTOR
AUDIO
DIGITAL
VIDEO
POWER
IC512
IC511
IC513
CN503
CN502
CN504
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
13

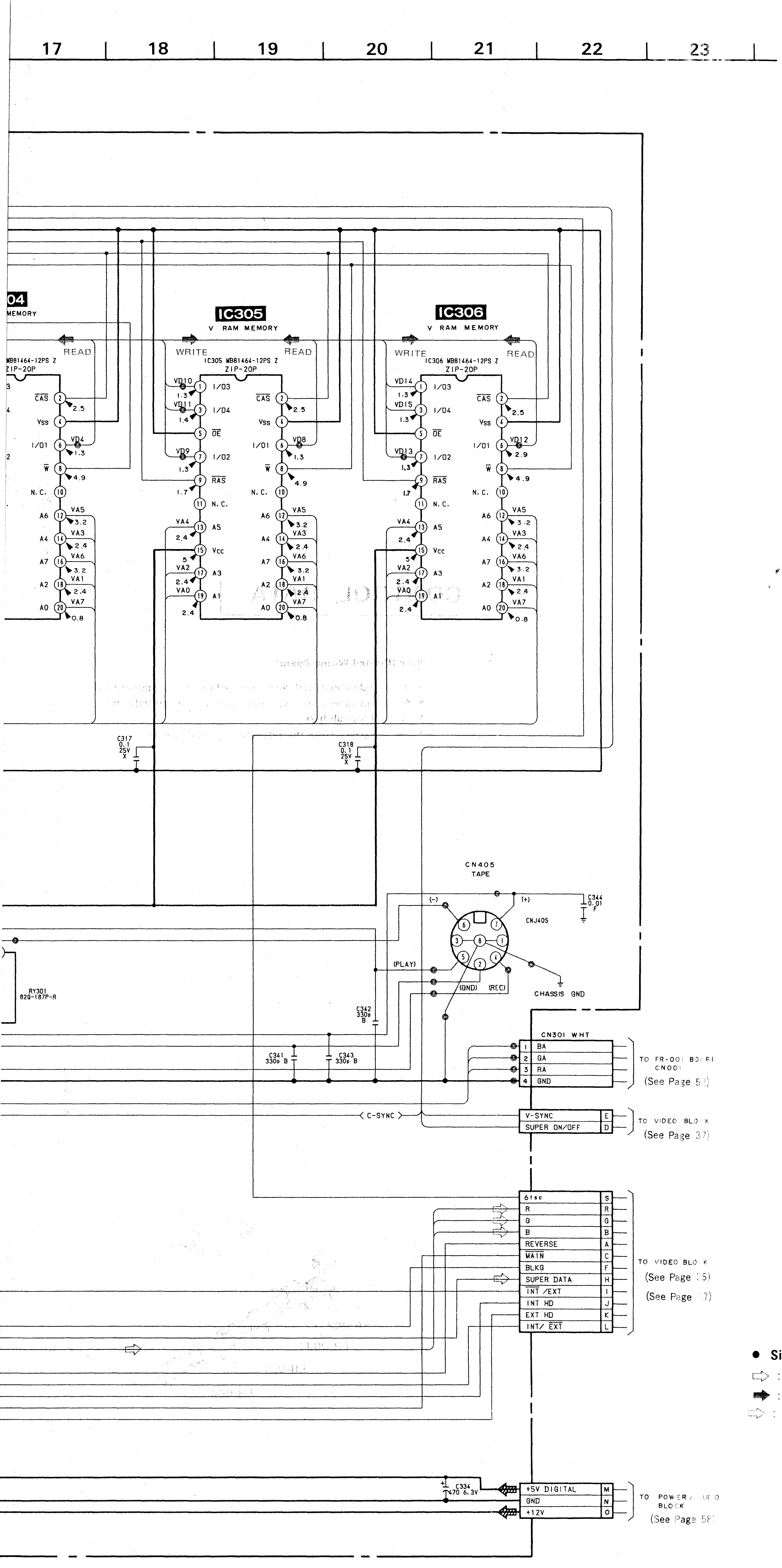
MM-005 (DIGITAL BLOCK) SCHEMATIC DIAGRAM

— Ref. No. MM-005 BOARD: 1000 series —


MM - 005 BOARD (DIGITAL BLOCK)
IC301
8BIT μ COM
IC301 RF65C027Y -0004
IC317
BUSY SIGNAL
IC317 TC74HC08P
IC307
BUFFER
IC307 SN7417N
IC308
BUFFER
IC308 SN7417N
IC309
4BIT μ COM
IC309 μPD1510ACU-6 08
IC319
RESET
IC319 M51957BL
IC311
DATA SELECT
IC311 TC74HC51P
IC312
IC312 TC74HC02P
IC313
BLKG ADD
IC313 TC74HC08P
IC316
LODE AMP
Q301
SWITCH
Q301 2SC2785-F
Q303 2SB733
Q306 2SC2785
Q304 2SC2785
Q305 DTC144ES
CN302
DATA0
DATA1
DATA2
DATA3
STROBE
BUSY
READY
+5V
+12V
GND
TO FR-002 BOARD CN010
(See Page 51)
CN303 WHT
B0
B1
B2
B3
+5V
S1
S2
SEL
GND
TO FR-003 BOARD CN020
(See Page 51)
PS301 ICP-N20
PS302 ICP-N10
PS303 ICP-N5
X302 4MHz
FB323 *2
FB322 *2
CMT REMOTE
CMT OUT
CMT IN
CMT BIT RATE
TIMER OUT
DATA 0
DATA 1
DATA 2
DATA 3
READY
CRCT
TEST 1
TEST 2
TEST 3
STB
PB
PC
PM
PY
DP-SW
S-SW
OUT-SW
PHOTO L
PHOTO R
R/W
φ2
5C16YCS
A0
A1
A2
A3
D0
D1
D2
M-LEVEL
R
G
B
EN
CLK OUT
AH
TEST
STBY
RES
TRCO
CLK IN
PRT W/B
Super ON/OFF
RXD
SCI
TIMER IN
DC MOTOR
AL
V-SYCN
C-SYNC
CLK IN
CLK OUT
PB0
INT
Vcc
PH0
PH1
PH2
PH3
PE2
PA0
PA1
PA2
PA3
PD3
PD2
PD1
PD0
PC3
PC2
PC1
PC0
RES
TEST
X2
X1
GND
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

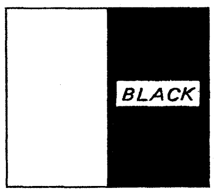

10
11
12
13
14
15
16
17
18
19
20
IC302
CRTC
IC302 RF5C17Y
M-LEVEL
CLK OUT
TEST
IC303
V RAM MEMORY
IC303 MB81464-12PS Z
ZIP-20P
WRITE
READ
IC304
V RAM MEMORY
IC304 MB81464-12PS Z
IC305
V RAM MEMORY
IC305 MB81464-12PS Z
IC306 MB81464-
Q301
SWITCH
2SC2785-F
IC316
LODE AMP
IC316 NJM4558D
Q302
SWITCH
2SA1175-F
RY301
820-187P-R
CMT IN
CMT OUT
CMT REMOTE
D304 1SS119
D305 1SS119
(PLAY)
(GND)
C-SYNC
IC313 TC74HC08P
IC313
BLKG ADD
IC314 MC74HC4053N
IC314
ANALOG SWITCH
INH
COM VEE
GND
IC315 TC74HC51P
IC315
SYNC SE
*2
FB322
C334 470 6.3V


6
7
8
9
10
11
12
13
14
15
16
IC301
8BIT μ COM
IC301 RF65C027Y -0004
IC302
CRTC
IC302 RF5C17Y
IC303
V RAM MEMORY
IC303 MB81464-12PS Z ZIP-20P
WRITE
READ
IC304
V RAM MEMORY
IC319
RESET
IC319 M51957BL
IC311
DATA SELECT
IC311 TC74HC51P
Q301
SWITCH
Q301 2SC2785-F
IC316
LODE AMP
IC316 NJM4558D
Q302
SWITCH
Q302 2SA1175-F
IC312
IC312 TC74HC02P
IC313
BLKG ADD
IC313 TC74HC08P
IC314
ANALOG SWITCH
IC314 MC74HC4053N
IC315
SYNC SEL
IC315 TC74HC51P
Q305 DTC144ES
CMT REMOTE
CMT OUT
CMT IN
CMT BIT RATE
TIMER OUT
DATA 0
DATA 1
DATA 2
DATA 3
READY
CRCT M/S
TEST 1
TEST 2
TEST 3
STB
BUSY
PRT W/B
Super ON/OFF
RXD
SCI
TIMER IN
DC MOTOR
M-LEVEL
CLK OUT
V-SYNC
C-SYNC
FB323
FB322


17
18
19
20
21
22
23
IC305
V RAM MEMORY
IC305 MB81464-12PS Z
ZIP-20P
IC306
V RAM MEMORY
IC306 MB81464-12PS Z
ZIP-20P
WRITE
READ
I/O3
I/O4
I/O1
I/O2
CAS
RAS
OE
W
Vss
Vcc
N.C.
A0
A1
A2
A3
A4
A5
A6
A7
C317 0.1 25V X
C318 0.1 25V X
RY301 829-187P-R
CN405 TAPE
CNJ405
(PLAY)
(GND)
(REC)
CHASSIS GND
C342 330p B
C341 330p B
C343 330p B
C344 0.01 F
CN301 WHT
BA
GA
RA
GND
TO FR-001 BOARD CN001
C-SYNC
V-SYNC
SUPER ON/OFF
TO VIDEO BLOCK
(See Page 37)
6fsc
R
G
B
REVERSE
MAIN
BLKG
SUPER DATA
INT/EXT
INT HD
EXT HD
INT/EXT
C334 470 6.3V
+5V DIGITAL
GND
+12V
TO POWER/AUDIO BLOCK

Note (Schematic Diagram)

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : B + line.
- : Flowing direction of B +, − lines.
- MEASURING CONDITION OF VOLTAGE VALUE AND WAVE FORM
  - VOLTAGE ARE DC WITH RESPECT TO GROUND UNLESS OTHERWISE NOTED.
  - READINGS ARE TAKEN WITH SCANNER TO B/W PATTERN SIGNAL INPUT.
  - READING ARE TAKEN WITH A DIGITAL MULTIMETER (DC 10 MΩ).
- Unless otherwise specified, voltages and waveforms are measured with the following conditons.
  COLOUR SELECT knob : BLACK
  INPUT SELECT button : 1
  OUTPUT SELECT button : SUPERIMPOSE
  Input colour-bar signal to INPUT 1.
  Read in Fig.-1 with scanner.



Monitor screen

Fig.-1

Note: Read in to make black about half of the monitor screen.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- **Signal path**

⇨ : Y SIGNAL
➡ : DATA SIGNAL
⇨ : CHROMA SIGNAL

FR-001 (CONTROL), FR-002 (DATA), FR-003 (TRACK BALL), FR-004 (LED) PRINTED WIRING BOARD

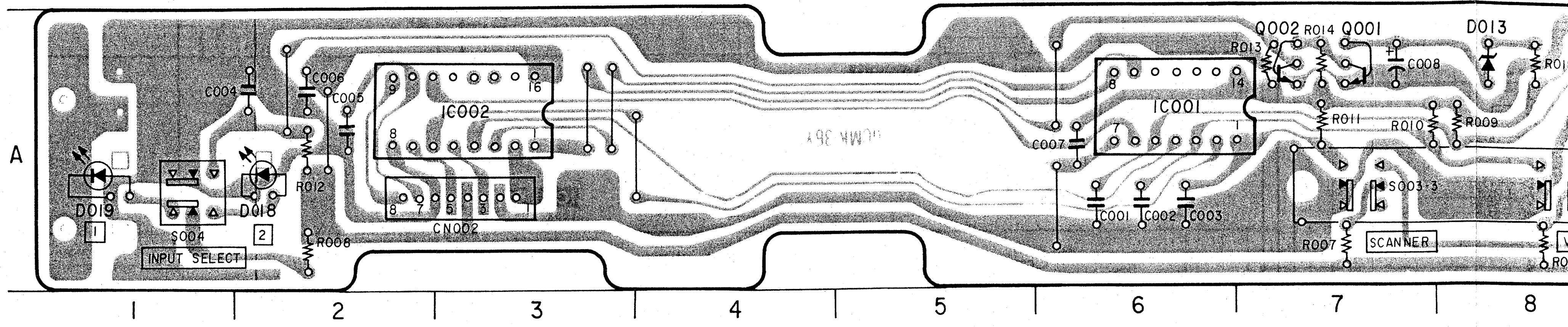
— Ref. No. FR-001 BOARD: 4000 series, FR-002 BOARD: 4200 series, FR-003 BOARD: 4300 series, FR-004 BOARD: 4400 series —

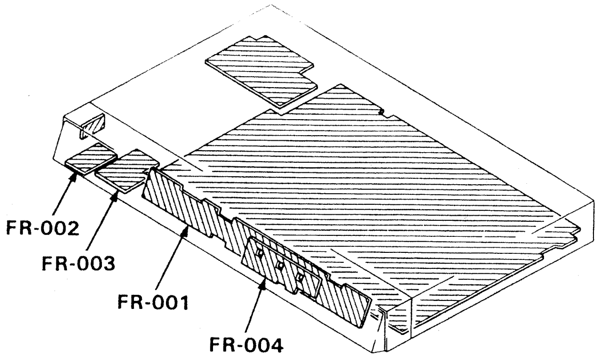
Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.

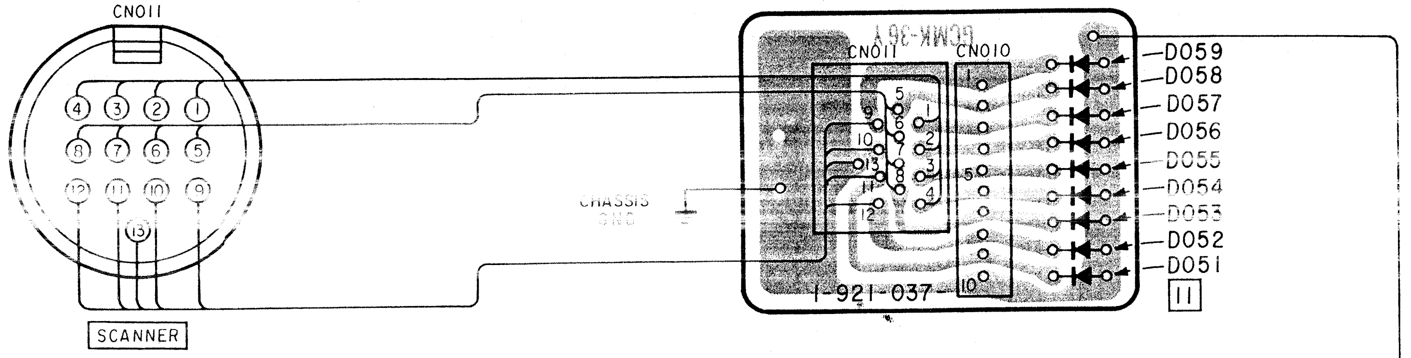
FR-001 BOARD	
CN002	A-3
CN003	A-9
D001	A-11
D002	A-11
D003	A-11
D004	A-11
D005	A-11
D006	A-10
D007	A-10
D008	A-10
D009	A-10
D010	A-10
D011	A-10
D012	A-10
D013	A-8
D018	A-1
D019	A-1
IC001	A-6
IC002	A-3
Q001	A-7
Q002	A-7

FR-001 BOARD (CONDUCTOR SIDE)

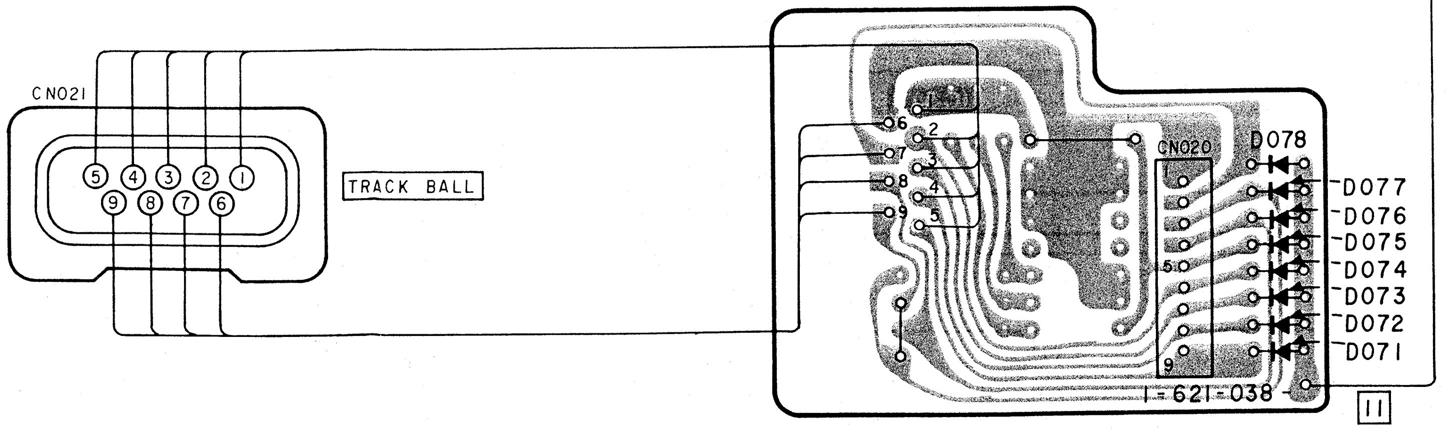

A
C004
C006
C005
IC002
9
16
8
1
D019
1
S004
INPUT SELECT
D018
2
R012
R008
CN002
8
7
6
5
4
3
2
1
Q002
R014
Q001
D013
R013
C008
IC001
8
14
7
1
C007
R011
R010
R009
S003-3
C001
C002
C003
R007
SCANNER
1
2
3
4
5
6
7
8


FR-002
FR-003
FR-001
FR-004

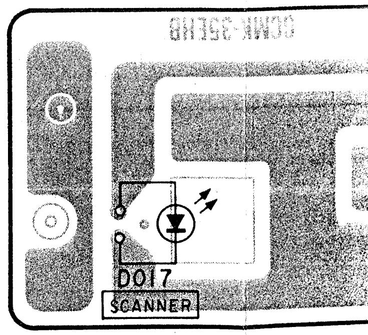
FR-002 BOARD (CONDUCTOR SIDE)


CN011
4
3
2
1
8
7
6
5
12
11
10
9
13
SCANNER
CHASSIS GND
CN011
CN010
5
9
10
13
11
12
1
2
3
4
5
10
D059
D058
D057
D056
D055
D054
D053
D052
D051
1-921-037
11

FR-003 BOARD (CONDUCTOR SIDE)


CN021
5
4
3
2
1
9
8
7
6
TRACK BALL
6
7
8
9
2
3
4
5
CN020
5
9
D078
D077
D076
D075
D074
D073
D072
D071
1-621-038
11

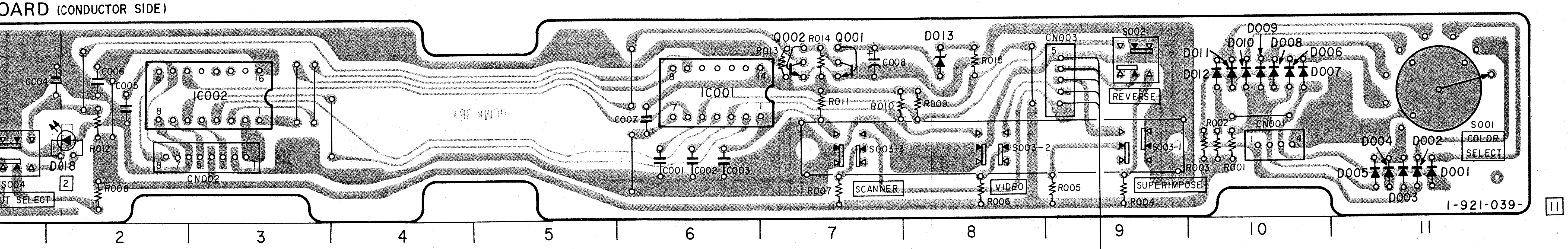
FR-004 BOARD (CONDU


D017
SCANNER

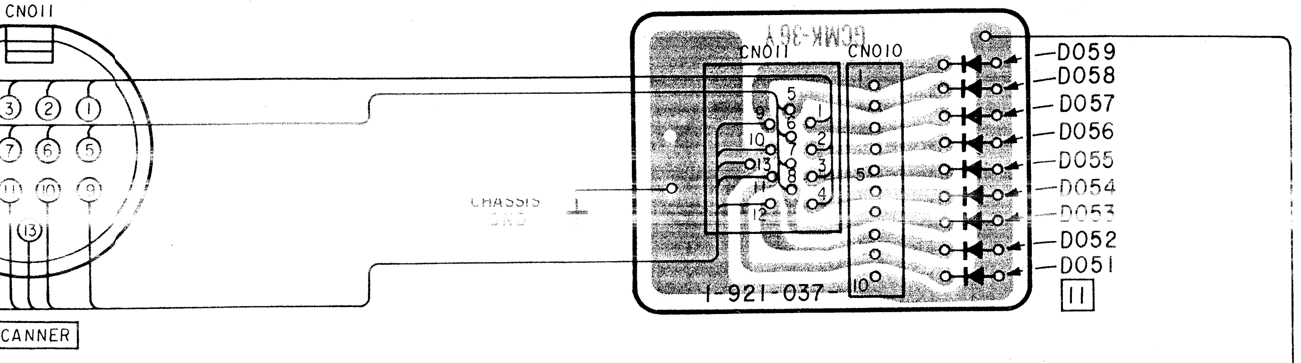
FR-002 (DATA), FR-003 (TRACK BALL), FR-004 (LED) PRINTED WIRING BOARD

D: 4000 series, FR-002 BOARD: 4200 series, FR-003 BOARD: 4300 series, FR-004 BOARD: 4400 series —

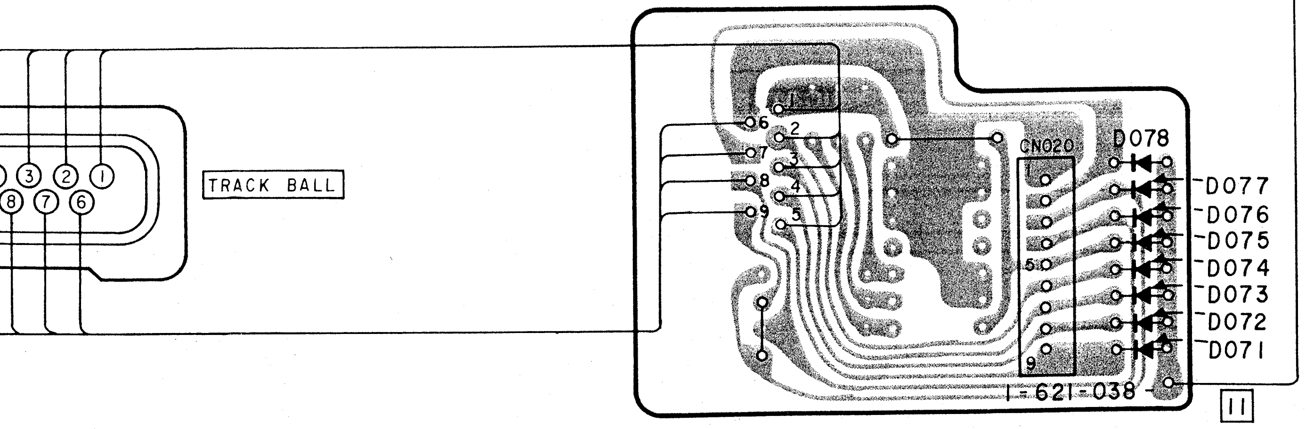
OARD (CONDUCTOR SIDE)


IC002
IC001
CN002
CN001
CN003
C004
C005
C006
C007
C001
C002
C003
C008
R012
R008
R013
R014
R011
R010
R009
R015
R007
R006
R005
R004
R003
R002
R001
Q002
Q001
D013
D018
D009
D010
D008
D011
D006
D012
D007
D004
D002
D005
D001
D003
S004
UT SELECT
S003-3
S003-2
S003-1
S002
S001
SCANNER
VIDEO
SUPERIMPOSE
REVERSE
COLOR SELECT
1-921-039-
11
2
3
4
5
6
7
8
9
10
11

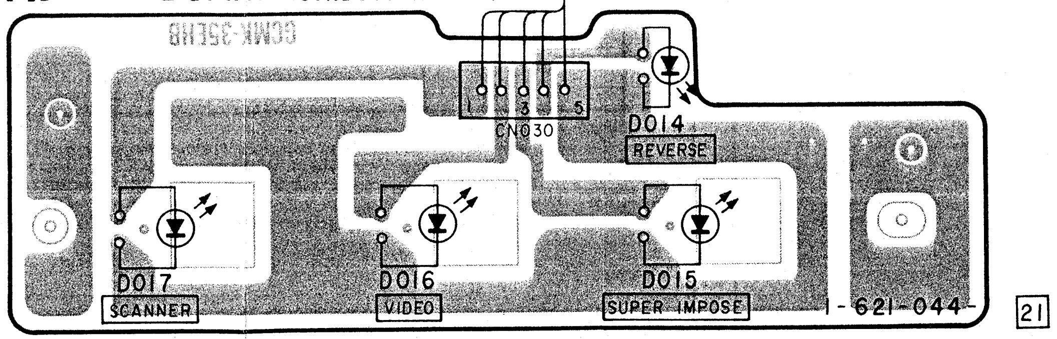
FR-002 BOARD (CONDUCTOR SIDE)


CN011
CN010
CHASSIS GND
D059
D058
D057
D056
D055
D054
D053
D052
D051
1-921-037
11
CANNER

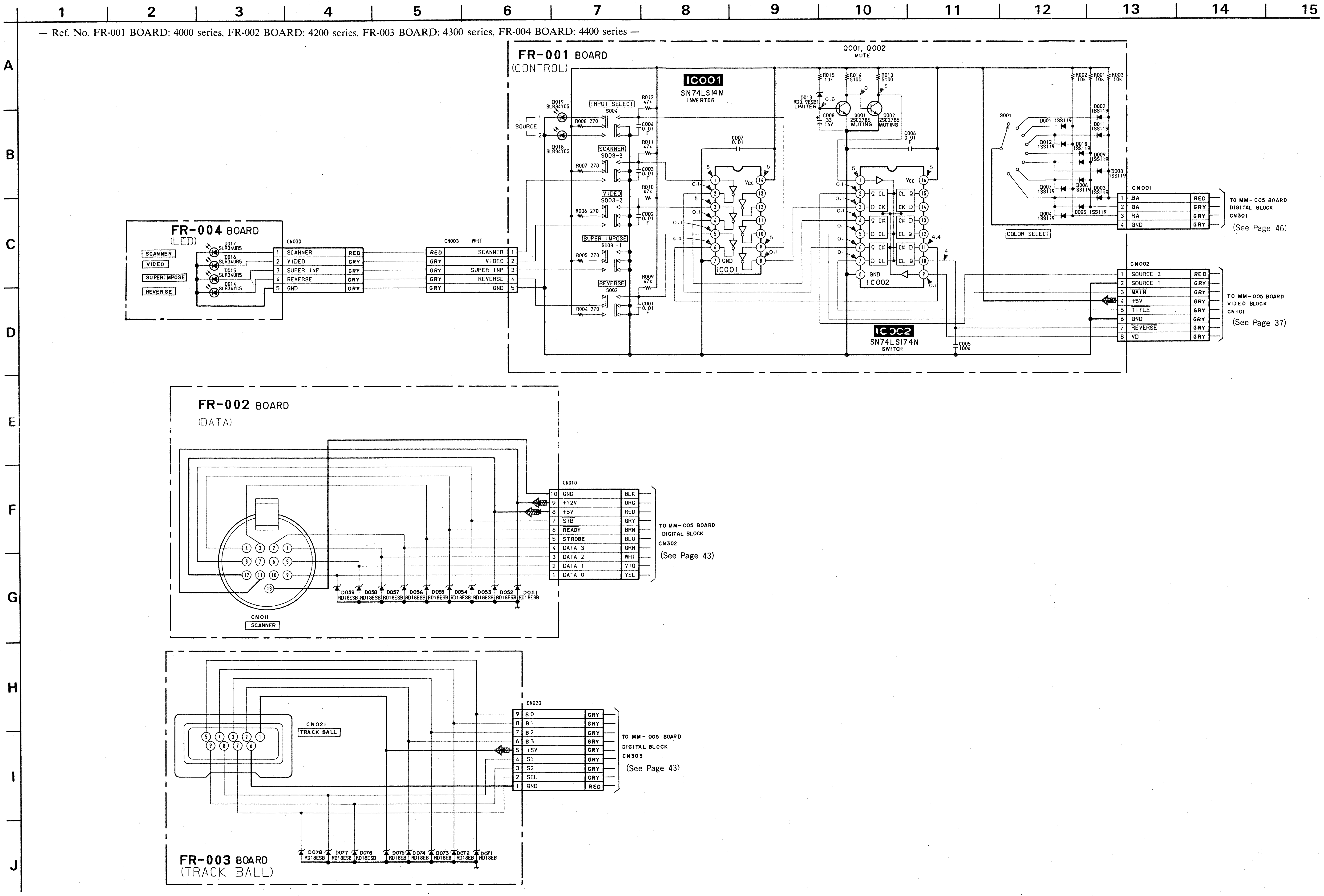
FR-003 BOARD (CONDUCTOR SIDE)


TRACK BALL
CN020
D078
D077
D076
D075
D074
D073
D072
D071
1-621-038
11

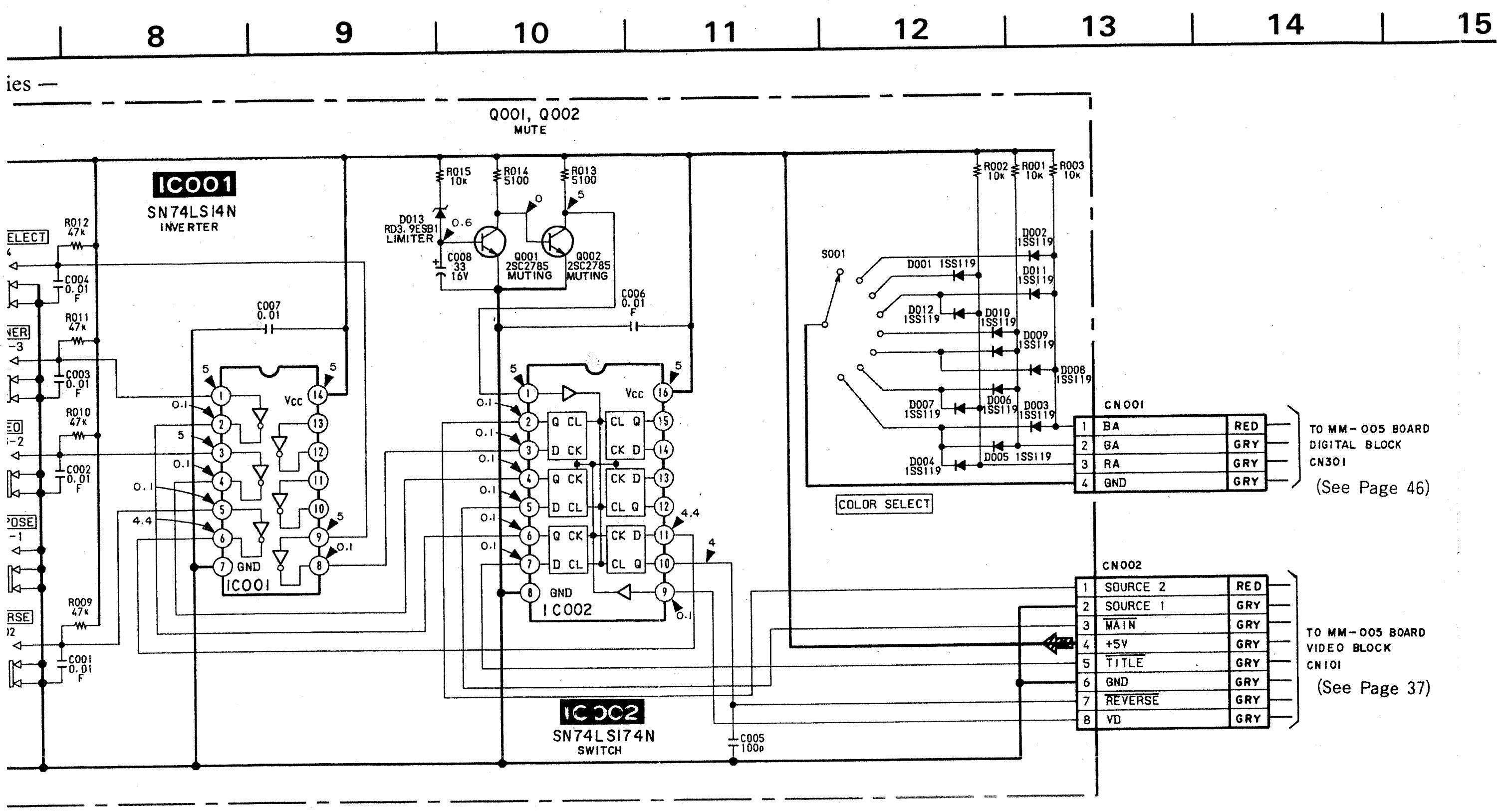
FR-004 BOARD (CONDUCTOR SIDE)

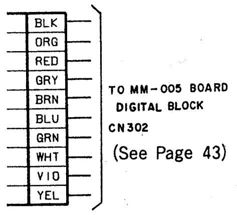

CN030
D014
REVERSE
D017
SCANNER
D016
VIDEO
D015
SUPER IMPOSE
1-621-044-
21

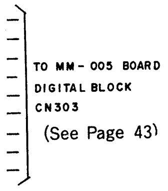
FR-001 (CONTROL), FR-002 (DATA), FR-003 (TRACK BALL), FR-004 (LED) SCHEMATIC DIAGRAM


— Ref. No. FR-001 BOARD: 4000 series, FR-002 BOARD: 4200 series, FR-003 BOARD: 4300 series, FR-004 BOARD: 4400 series —

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
FR-001 BOARD
(CONTROL)
IC001
SN74LS14N
INVERTER
Q001, Q002
MUTE
D019 SLR34YC5
D018 SLR34YC5
SOURCE
INPUT SELECT
S004
R008 270
R012 47k
C004 0.01 F
SCANNER
S003-3
R007 270
R011 47k
C003 0.01 F
VIDEO
S003-2
R006 270
R010 47k
C002 0.01 F
SUPER IMPOSE
S003-1
R005 270
REVERSE
S002
R004 270
R009 47k
C001 0.01 F
C007 0.01
Vcc
GND
IC001
R015 10k
R014 5100
R013 5100
D013 RD3.9ESB1 LIMITER
C008 33 16V
Q001 2SC2785 MUTING
Q002 2SC2785 MUTING
C006 0.01 F
IC002
SN74LS174N
SWITCH
C005 100p
S001
D001 1SS119
D002 1SS119
D003 1SS119
D004 1SS119
D005 1SS119
D006 1SS119
D007 1SS119
D008 1SS119
D009 1SS119
D010 1SS119
D011 1SS119
D012 1SS119
R002 10k
R001 10k
R003 10k
COLOR SELECT
CN001
1 BA RED
2 GA GRY
3 RA GRY
4 GND GRY
TO MM-005 BOARD
DIGITAL BLOCK
CN301
(See Page 46)
CN002
1 SOURCE 2 RED
2 SOURCE 1 GRY
3 MAIN GRY
4 +5V GRY
5 TITLE GRY
6 GND GRY
7 REVERSE GRY
8 VD GRY
TO MM-005 BOARD
VIDEO BLOCK
CN101
(See Page 37)
FR-004 BOARD
(LED)
SCANNER
VIDEO
SUPERIMPOSE
REVERSE
D017 SLR34UR5
D016 SLR34UR5
D015 SLR34UR5
D014 SLR34YC5
CN030
1 SCANNER RED
2 VIDEO GRY
3 SUPER INP GRY
4 REVERSE GRY
5 GND GRY
CN003 WHT
RED SCANNER 1
GRY VIDEO 2
GRY SUPER INP 3
GRY REVERSE 4
GRY GND 5
FR-002 BOARD
(DATA)
CN010
10 GND BLK
9 +12V ORG
8 +5V RED
7 STB GRY
6 READY BRN
5 STROBE BLU
4 DATA 3 GRN
3 DATA 2 WHT
2 DATA 1 VIO
1 DATA 0 YEL
TO MM-005 BOARD
DIGITAL BLOCK
CN302
(See Page 43)
D059 RD18ESB
D058 RD18ESB
D057 RD18ESB
D056 RD18ESB
D055 RD18ESB
D054 RD18ESB
D053 RD18ESB
D052 RD18ESB
D051 RD18ESB
CN011
SCANNER
CN021
TRACK BALL
CN020
9 B0 GRY
8 B1 GRY
7 B2 GRY
6 B3 GRY
5 +5V GRY
4 S1 GRY
3 S2 GRY
2 SEL GRY
1 GND RED
TO MM-005 BOARD
DIGITAL BLOCK
CN303
(See Page 43)
D078 RD18ESB
D077 RD18ESB
D076 RD18ESB
D075 RD18EB
D074 RD18EB
D073 RD18EB
D072 RD18EB
D071 RD18EB
FR-003 BOARD
(TRACK BALL)

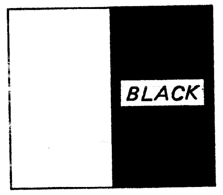

8
9
10
11
12
13
14
15
Q001, Q002
MUTE
IC001
SN74LS14N
INVERTER
IC002
SN74LS174N
SWITCH
R015 10k
R014 5100
R013 5100
D013 RD3.9ESB1 LIMITER
C008 33 16V
Q001 2SC2785 MUTING
Q002 2SC2785 MUTING
C006 0.01 F
C007 0.01
C004 0.01 F
C003 0.01 F
C002 0.01 F
C001 0.01 F
R012 47k
R011 47k
R010 47k
R009 47k
C005 100p
S001
COLOR SELECT
R002 10k
R001 10k
R003 10k
D001 1SS119
D002 1SS119
D003 1SS119
D004 1SS119
D005 1SS119
D006 1SS119
D007 1SS119
D008 1SS119
D009 1SS119
D010 1SS119
D011 1SS119
D012 1SS119
CN001
1 BA RED
2 GA GRY
3 RA GRY
4 GND GRY
TO MM-005 BOARD DIGITAL BLOCK CN301
(See Page 46)
CN002
1 SOURCE 2 RED
2 SOURCE 1 GRY
3 MAIN GRY
4 +5V GRY
5 TITLE GRY
6 GND GRY
7 REVERSE GRY
8 VD GRY
TO MM-005 BOARD VIDEO BLOCK CN101
(See Page 37)


BLK
ORG
RED
GRY
BRN
BLU
GRN
WHT
VIO
YEL
TO MM-005 BOARD
DIGITAL BLOCK
CN302
(See Page 43)


TO MM-005 BOARD
DIGITAL BLOCK
CN303
(See Page 43)

Note (Schematic Diagram)

- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel disignation.
- ━ : B + line.
- ⇨ : Flowing direction of B +, − lines.
- MEASURING CONDITION OF VOLTAGE VALUE AND WAVE FORM
  - VOLTAGE ARE DC WITH RESPECT TO GROUND UNLESS OTHERWISE NOTED.
  - READINGS ARE TAKEN WITH SCANNER TO B/W PATTERN SIGNAL INPUT.
  - READING ARE TAKEN WITH A DIGITAL MULTIMETER (DC 10 MΩ).
- Unless otherwise specified, voltages and waveforms are measured with the following conditons.
  COLOUR SELECT knob : BLACK
  INPUT SELECT button : 1
  OUTPUT SELECT button : SUPERIMPOSE
  Input colour-bar signal to INPUT 1.
  Read in Fig.-1 with scanner.



Monitor screen

Fig.-1

Note: Read in to make black about half of the monitor screen.

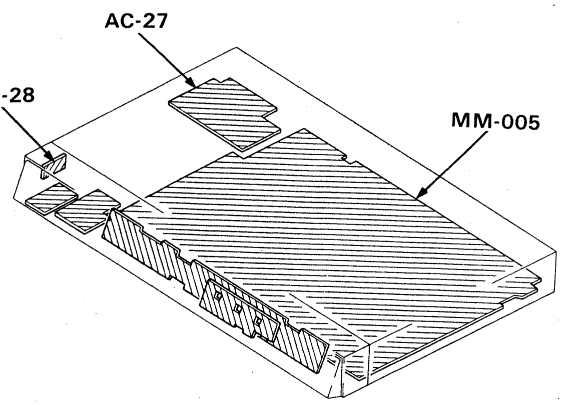
When indicating parts by reference number, please include the board name.

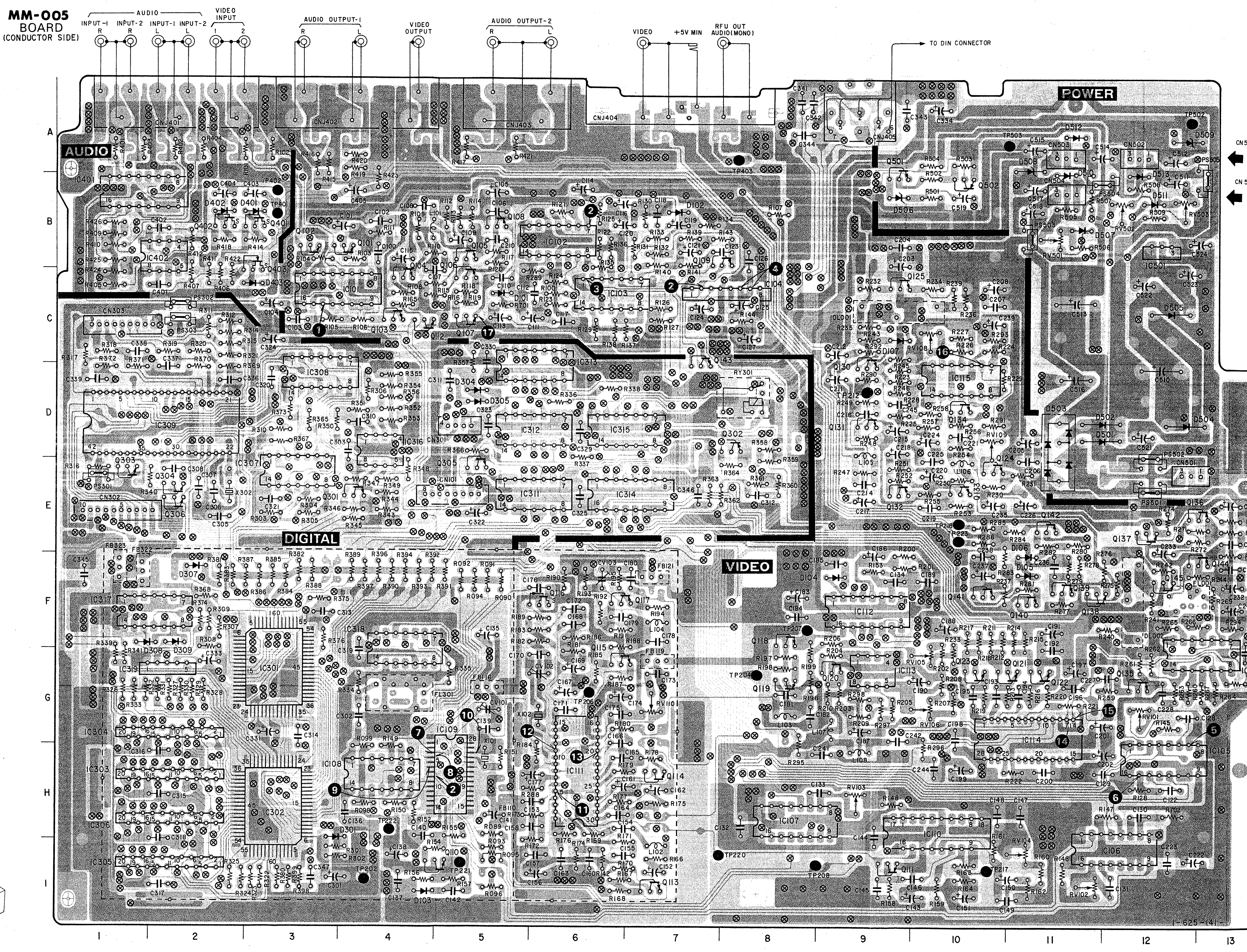
MM-005 (VIDEO BLOCK, DIGITAL BLOCK, POWER BLOCK), AC-27 (FILTER), AC-28 (POWER SW) PRINTED WIRING BOARD

— Ref. No. MM-005 BOARD: 1000 series, AC-27, AC-28 BOARDS: 3000 series —

MM-005 BOARD

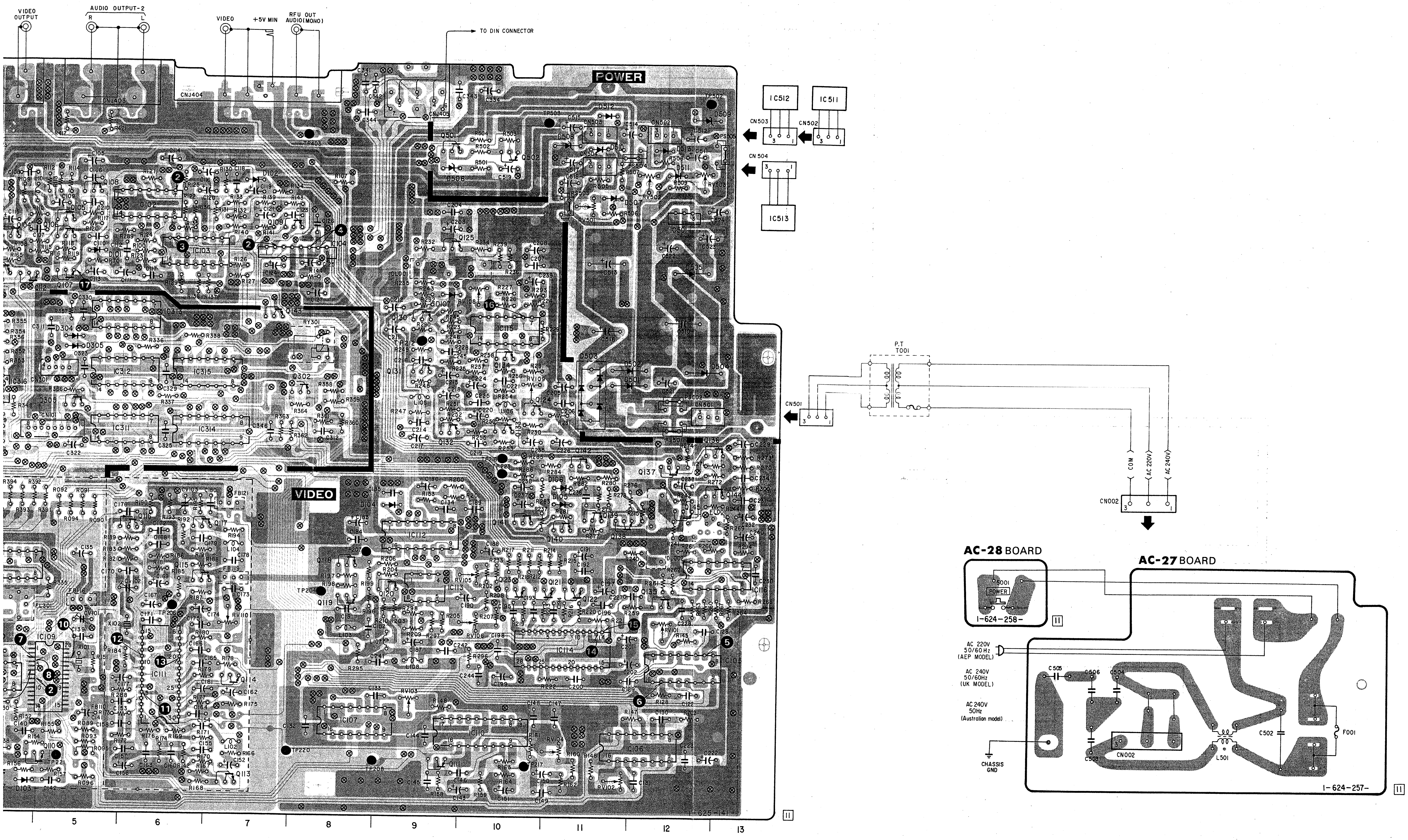
CN101	E-5
CN301	D-5
CN302	E-1
CN303	C-1
CN501	E-12
CN502	A-12
CN503	A-11
CN504	B-11
CV101	G-5
CV102	G-6
CV103	F-6
D101	C-5
D102	B-7
D103	I-4
D104	F-9
D105	F-11
D106	E-11
D107	C-9
D301	H-4
D304	D-5
D305	D-5
D307	F-2
D308	F-1
D309	F-2
D401	B-3
D402	B-2
D403	C-3
D501	D-11
D502	D-11
D503	D-11
D504	D-12
D505	C-12
D506	B-9
D507	B-11
D508	B-11
D509	A-12
D510	B-11
D511	B-12
D512	A-11
D513	B-12
IC101	C-3
IC102	B-6
IC103	C-6
IC104	C-8
IC105	H-12
IC106	I-12
IC107	H-8
IC108	H-4
IC109	G-5
IC110	H-10
IC111	H-6
IC112	F-9
IC113	G-9
IC114	G-11
IC115	D-10
IC116	G-13
IC301	G-3
IC302	H-3
IC303	H-1
IC304	G-1
IC305	I-1
IC306	H-1
IC307	E-3
IC308	D-3
IC309	D-2
IC311	E-5
IC312	D-5
IC313	C-6
IC314	E-6
IC315	D-6
IC316	D-4
IC317	F-1
IC318	F-4
IC319	G-2
IC401	B-1
IC402	B-2
IC501	B-12
Q101	B-4
Q102	B-3
Q103	C-4
Q104	C-4
Q105	B-5
Q106	C-5
Q107	C-5
Q108	B-5
Q109	B-7
Q110	I-5
Q111	I-9
Q112	C-4
Q113	I-7
Q114	H-7
Q115	G-6
Q116	F-6
Q117	F-7
Q118	F-8
Q119	G-8
Q120	G-9
Q121	G-11
Q122	G-11
Q123	G-10
Q124	D-10
Q125	C-9
Q130	D-9
Q131	D-9
Q132	E-9
Q133	E-10
Q134	D-10
Q135	G-12
Q136	E-12
Q137	E-12
Q138	F-11
Q139	F-11
Q140	F-11
Q141	F-10
Q142	E-11
Q143	C-7
Q144	E-13
Q145	F-12
Q301	E-4
Q302	D-8
Q303	E-1
Q304	E-2
Q305	E-5
Q306	E-2
Q401	B-3
Q402	B-2
Q403	B-3
Q501	B-9
Q502	B-10
RV101	G-12
RV102	I-11
RV103	H-9
RV104	I-11
RV105	G-10
RV106	G-10
RV108	C-10
RV109	D-10
RV110	G-7
RV501	B-11
RV502	B-12
RV503	B-12
TP202	I-4
TP204	G-8
TP206	G-6
TP207	F-8
TP208	I-8
TP212	D-9
TP216	E-10
TP217	I-10
TP220	I-8
TP221	I-5
TP222	H-4
TP223	E-10
TP401	B-3
TP402	B-3
TP403	A-8
TP501	A-10
TP502	A-12
TP503	A-10


AC-27
AC-28
MM-005


MM-005
BOARD
(CONDUCTOR SIDE)
AUDIO
INPUT-1
R
INPUT-2
R
INPUT-1
L
INPUT-2
L
VIDEO
INPUT
1
2
AUDIO OUTPUT-1
R
L
VIDEO
OUTPUT
AUDIO OUTPUT-2
R
L
VIDEO
+5V MIN
RFU OUT
AUDIO(MONO)
TO DIN CONNECTOR
AUDIO
DIGITAL
VIDEO
POWER
CNJ401
CNJ402
CNJ403
CNJ404
CNJ405
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
13
1-625-141-

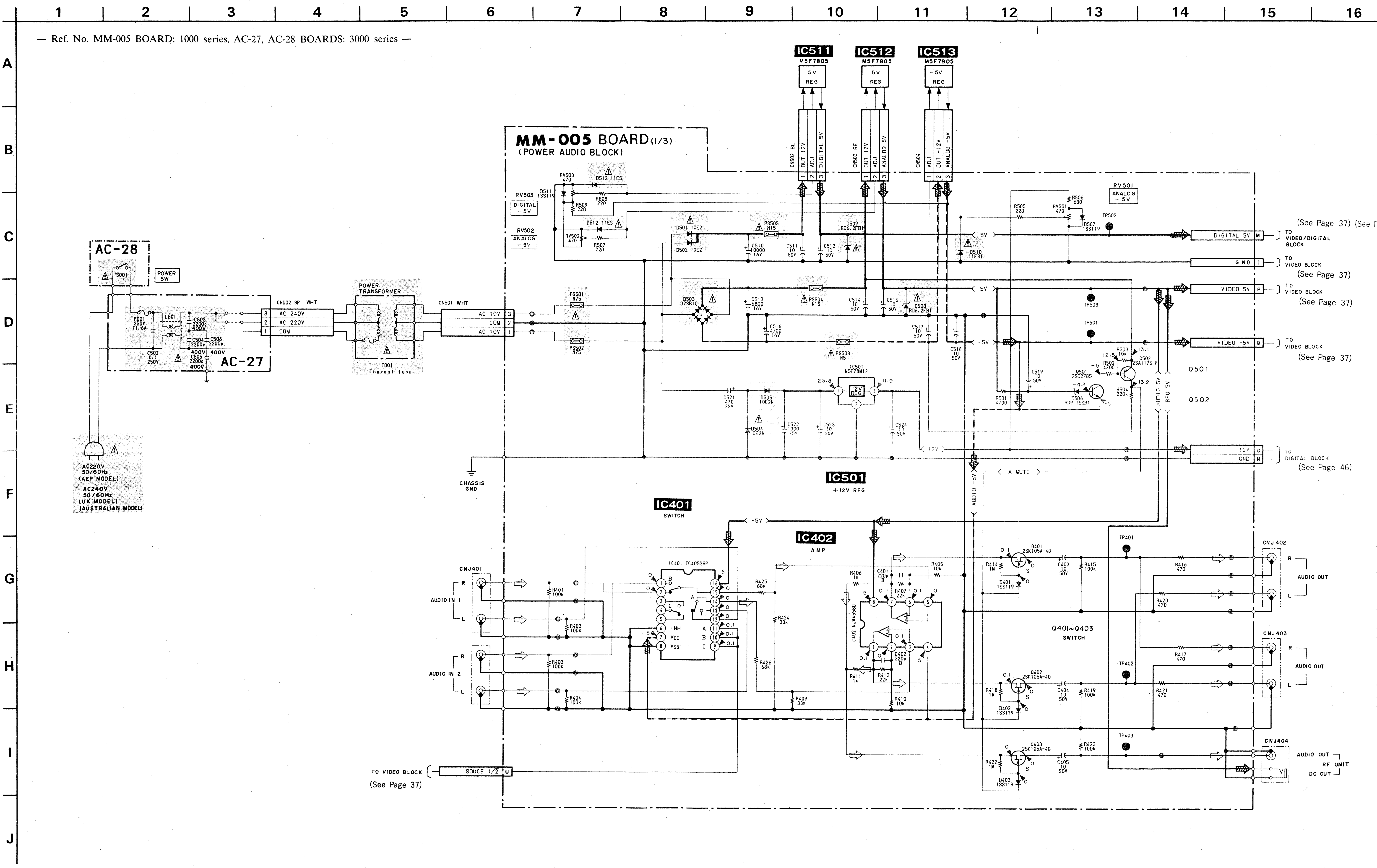
IC512
CN503
CN504
IC513

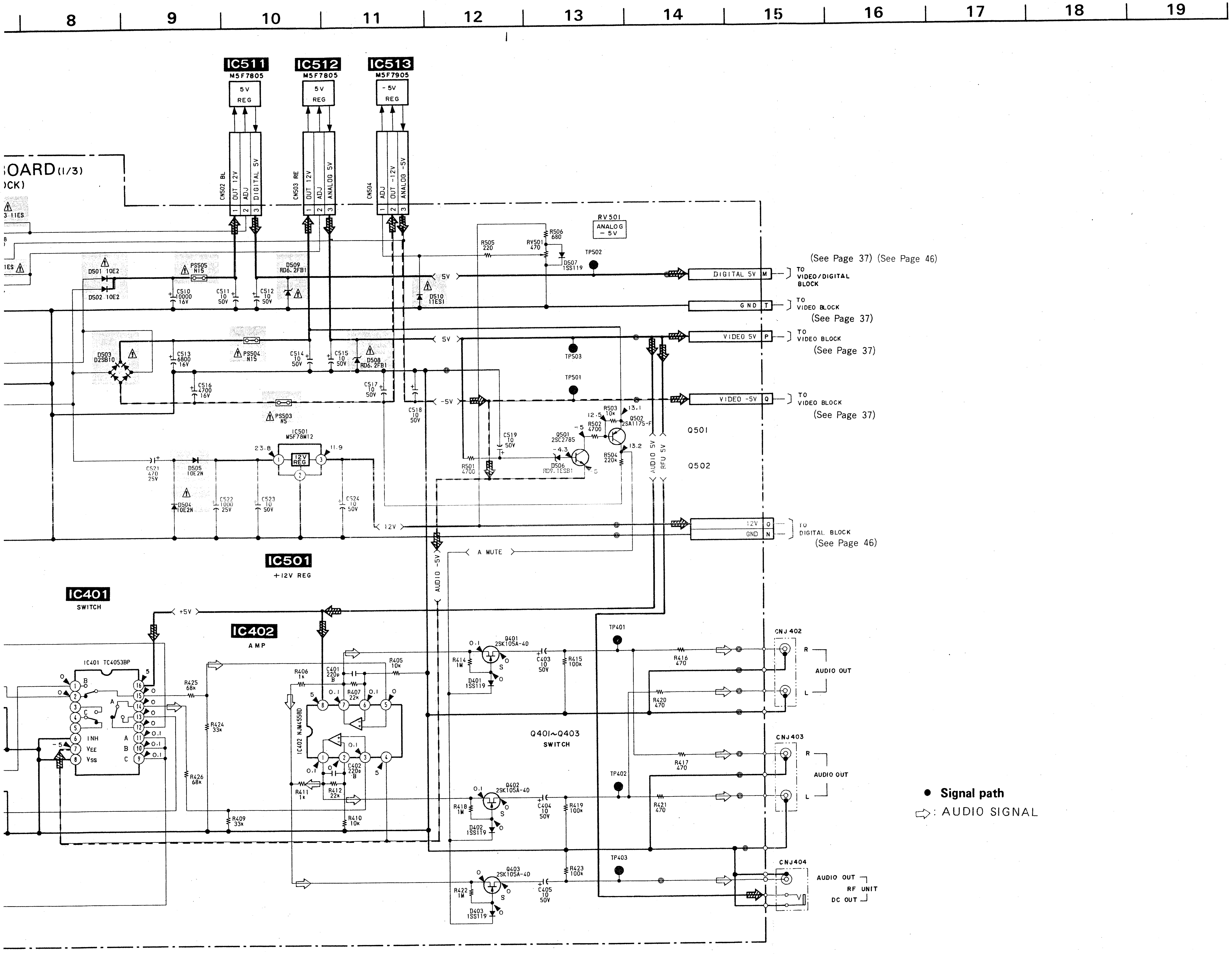
(FILTER), AC-28 (POWER SW) PRINTED WIRING BOARD


VIDEO OUTPUT
AUDIO OUTPUT-2
R
L
VIDEO
+5V MIN
RFU OUT AUDIO(MONO)
TO DIN CONNECTOR
POWER
VIDEO
IC512
IC511
IC513
CN503
CN502
CN504
CN501
P.T T001
COM
AC 220V
AC 240V
CN002
AC-28 BOARD
AC-27 BOARD
S001
POWER
1-624-258-
AC 220V 50/60Hz (AEP MODEL)
AC 240V 50/60Hz (UK MODEL)
AC 240V 50Hz (Australian model)
CHASSIS GND
C505
C506
C504
C502
C503
L501
F001
1-624-257-
1-625-141-
5
6
7
8
9
10
11
12
13

MM-005 (POWER BLOCK), AC-27 (FILTER), AC-28 (POWER SW) SCHEMATIC DIAGRAM

— Ref. No. MM-005 BOARD: 1000 series, AC-27, AC-28 BOARDS: 3000 series —


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
IC511 M5F7805 5V REG
IC512 M5F7805 5V REG
IC513 M5F7905 -5V REG
MM-005 BOARD (1/3)
(POWER AUDIO BLOCK)
CN502 BL 1 OUT 12V 2 ADJ 3 DIGITAL 5V
CN503 RE 1 OUT 12V 2 ADJ 3 ANALOG 5V
CN504 1 ADJ 2 OUT -12V 3 ANALOG -5V
RV503 DIGITAL +5V
RV502 ANALOG +5V
RV501 ANALOG -5V
AC-28
S001
POWER SW
AC-27
F001 250V T1.6A
L501
C502 0.1 250V
C503 2200p 400V
C504 2200p 400V
C505 2200p 400V
C506 2200p 400V
CN002 3P WHT
AC 240V
AC 220V
COM
POWER TRANSFORMER
T001 Thermal fuse
CN501 WHT
AC 10V
COM
AC 10V
AC220V 50/60Hz (AEP MODEL)
AC240V 50/60Hz (UK MODEL) (AUSTRALIAN MODEL)
CHASSIS GND
D501 10E2
D502 10E2
D503 D2SB10
D504 10E2N
D505 10E2N
D506 RD9.1ESB1
D507 1SS119
D508 RD6.2FB1
D509 RD6.2FB1
D510 11ES1
D511 1SS119
D512 11ES
D513 11ES
PS501 N75
PS502 N75
PS503 N5
PS504 N15
PS505 N15
C510 10000 16V
C513 6800 16V
C516 4700 16V
C521 470 25V
C522 1000 25V
IC501 M5F78M12
12V REG
IC501 +12V REG
TP501
TP502
TP503
Q501 2SC2785
Q502 2SA1175-F
Q501
Q502
5V
-5V
12V
DIGITAL 5V M
GND T
VIDEO 5V P
VIDEO -5V Q
12V O
GND N
TO VIDEO/DIGITAL BLOCK
(See Page 37)
TO VIDEO BLOCK
(See Page 37)
TO VIDEO BLOCK
(See Page 37)
TO VIDEO BLOCK
(See Page 37)
TO DIGITAL BLOCK
(See Page 46)
AUDIO 5V
RFU 5V
AUDIO -5V
A MUTE
+5V
IC401 SWITCH
IC401 TC4053BP
IC402 AMP
IC402 NJM4558D
CNJ401
AUDIO IN 1
AUDIO IN 2
R
L
INH
VEE
VSS
Q401 2SK105A-40
Q402 2SK105A-40
Q403 2SK105A-40
D401 1SS119
D402 1SS119
D403 1SS119
Q401~Q403 SWITCH
TP401
TP402
TP403
CNJ402
CNJ403
CNJ404
AUDIO OUT
AUDIO OUT
AUDIO OUT
RF UNIT
DC OUT
TO VIDEO BLOCK
SOUCE 1/2 U
(See Page 37)


8
9
10
11
12
13
14
15
16
17
18
19
IC511 M5F7805 5V REG
IC512 M5F7805 5V REG
IC513 M5F7905 -5V REG
OARD (1/3)
CN502 BL OUT 12V ADJ DIGITAL 5V
CN503 RE OUT 12V ADJ ANALOG 5V
CN504 ADJ OUT -12V ANALOG -5V
RV501 ANALOG -5V
D501 10E2
D502 10E2
PS505 N15
D509 RD6.2FB1
D510 11ES1
D503 D2SB10
PS504 N15
D508 RD6.2FB1
PS503 N5
IC501 M5F78M12
12V REG
D505 10E2N
D504 10E2N
DIGITAL 5V M
GND T
VIDEO 5V P
VIDEO -5V Q
12V O
GND N
TO VIDEO/DIGITAL BLOCK
TO VIDEO BLOCK
TO DIGITAL BLOCK
(See Page 37) (See Page 46)
(See Page 37)
(See Page 46)
TP501
TP502
TP503
Q501 2SC2785
Q502 2SA1175-F
Q501
Q502
AUDIO 5V
RFU 5V
A MUTE
AUDIO -5V
IC501 +12V REG
IC401 SWITCH
IC402 AMP
IC401 TC4053BP
IC402 NJM4558D
Q401 2SK105A-40
Q402 2SK105A-40
Q403 2SK105A-40
D401 1SS119
D402 1SS119
D403 1SS119
Q401~Q403 SWITCH
TP401
TP402
TP403
CNJ402 AUDIO OUT R L
CNJ403 AUDIO OUT R L
CNJ404 AUDIO OUT RF UNIT DC OUT

- **Signal path**

⇨ : AUDIO SIGNAL

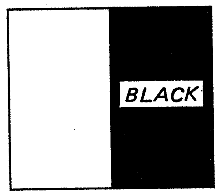
Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

Note (Schematic Diagram)

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ☐ : panel for repair.
- ☐ : adjustment for repair.
- ▬ : B + line.
- - - - : B – line.
- ⇨ : Flowing direction of B +, – lines.
- MEASURING CONDITION OF VOLTAGE VALUE AND WAVE FORM
  - VOLTAGE ARE DC WITH RESPECT TO GROUND UNLESS OTHERWISE NOTED.
  - READINGS ARE TAKEN WITH SCANNER TO B/W PATTERN SIGNAL INPUT.
  - READING ARE TAKEN WITH A DIGITAL MULTIMETER (DC 10 MΩ).
- Unless otherwise specified, voltages and waveforms are measured with the following conditons.

  COLOUR SELECT knob : BLACK
  INPUT SELECT button : 1
  OUTPUT SELECT button : SUPERIMPOSE
  Input colour-bar signal to INPUT 1.
  Read in Fig.-1 with scanner.



Monitor screen

Fig.-1

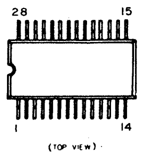
Note: Read in to make black about half of the monitor screen.

Note: **The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.**

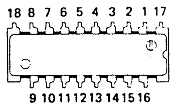
When indicating parts by reference number, please include the board name.

4-3. SEMICONDUCTORS

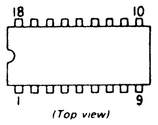
CX7930A


28
15
1
14
(TOP VIEW)

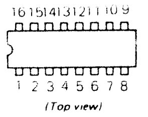
HA11441


18 8 7 6 5 4 3 2 1 17
9 10 11 12 13 14 15 16

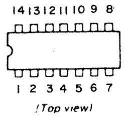
MB81464-12PSZ


18
10
1
9
(Top view)

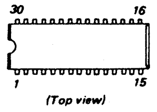
MC74HC4053N
SN74LS174N
SN74LS221N
TC4053BP


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

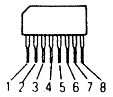
MC74HC74N
SN74LS14N
SN7416NS
SN7417N
TA7158P
TC74HCU04P
TC74HC02P
TC74HC08P
TC74HC51P
µPC319C
µPC339C
µPD4066BG


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

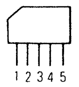
M51271SP


30
16
1
15
(Top view)

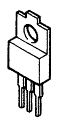
M51848L



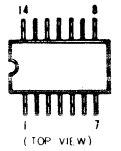
M51957BL



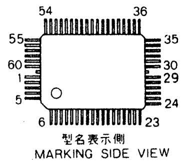
M5F7805
M5F7905



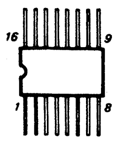
NJM2901M
TL084CNS


14
8
1
7
(TOP VIEW)

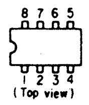
RF5C17Y
RF65C027Y


54
36
55
35
60
30
1
29
5
24
6
23
型名表示側
MARKING SIDE VIEW

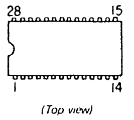
TC4049BF



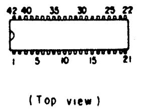
TL082CP
µPC4558C


8 7 6 5
1 2 3 4
(Top view)

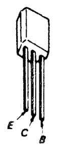
V7040


28
15
1
14
(Top view)

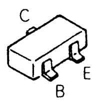
µPD1510ACU


42 40 35 30 25 22
1 5 10 15 21
(Top view)

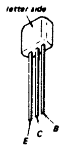
DTA144ES
DTC144ES
2SA1048
2SC634SP



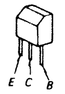
2SA1162
2SC1623



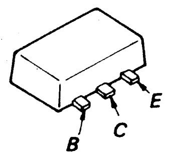
2SA1175
2SC2785
2SD1020



2SB733



2SB798



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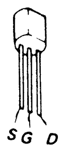
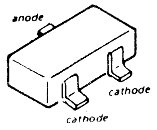
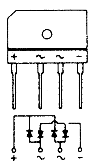


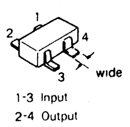
DAN202K


anode
cathode
cathode

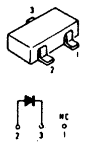
D2SB10



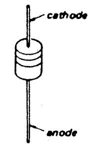
MA160


1
2
4
3
wide
1-3 Input
2-4 Output

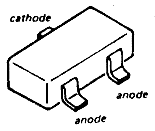
RD3.9MB2
RD5.1MB2



1SS119
11E-S2
RD3.9ESB2
RD9.1ESB
RD18ESB2


cathode
anode

1S2837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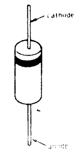
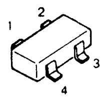
anode
anode

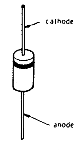
1T25-3



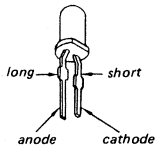
3SK132



10E2
RD6.2FB2


cathode
anode

TLY123
TLR123


long
short
anode
cathode

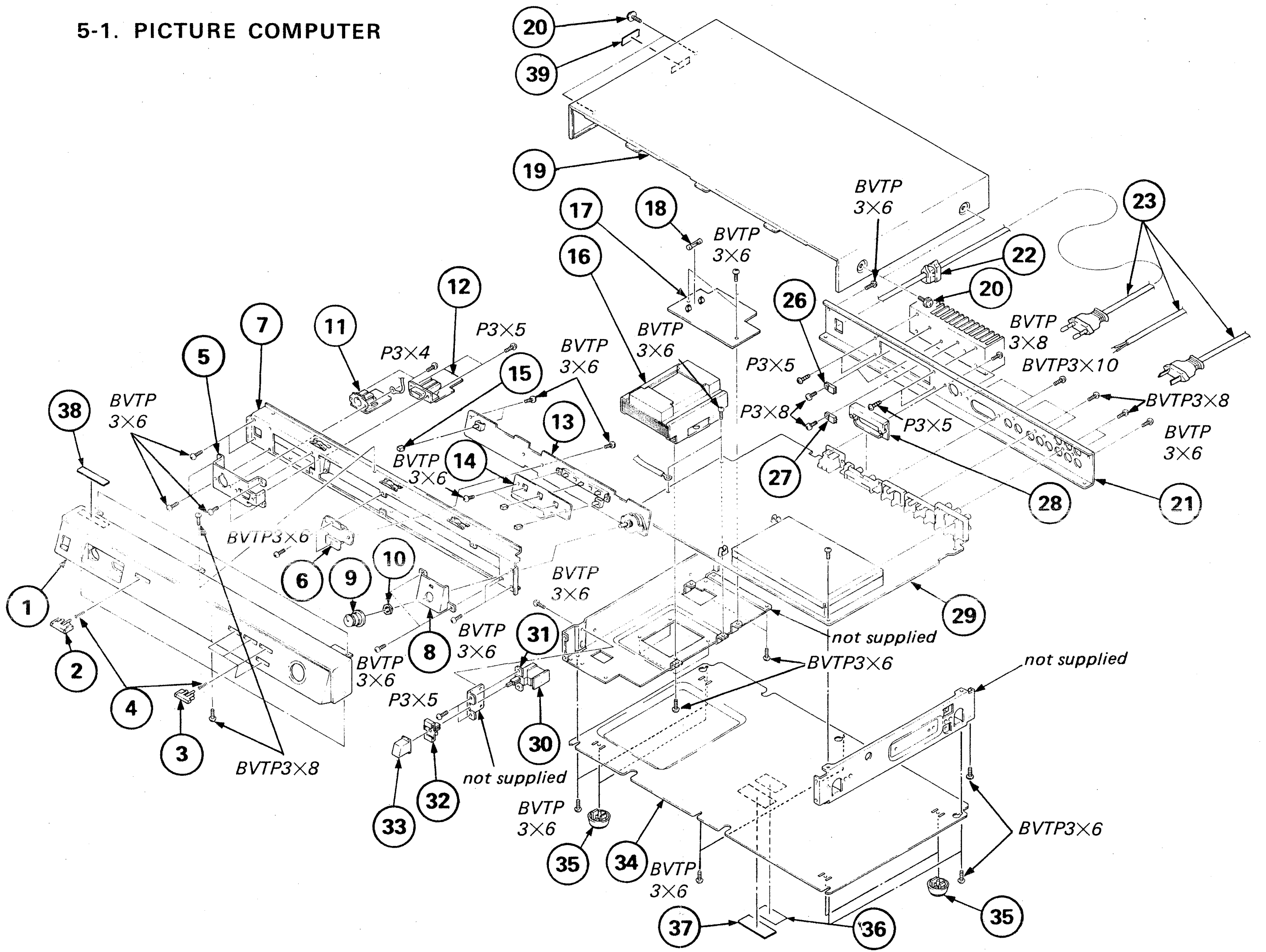
SECTION 5
EXPLODED VIEWS

NOTE:

- –XX, –X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

5-1. PICTURE COMPUTER


20
39
19
17
18
16
BVTP 3×6
BVTP 3×6
23
22
20
26
12
7
11
5
P3×4
P3×5
15
BVTP 3×6
BVTP 3×6
P3×5
P3×8
P3×5
BVTP 3×8
BVTP3×10
BVTP3×8
BVTP 3×6
38
BVTP 3×6
13
BVTP 3×6
14
27
28
21
BVTP 3×6
6
9
10
1
BVTP 3×6
29
2
BVTP 3×6
8
31
not supplied
BVTP3×6
not supplied
4
P3×5
30
3
BVTP3×8
not supplied
33
32
BVTP 3×6
35
34
BVTP 3×6
BVTP3×6
37
36
35

No.	Part No.	Description	Remark
1	X-2125-902-1	ESCUTCHEON ASSY	
2	X-2118-207-1	PUSH BUTTON (SLR) ASSY	
3	X-2118-205-1	PUSH BUTTON (SL) ASSY	
4	2-217-533-00	SPRING, COMPRESSION	
5	*2-120-634-01	BRACKET, P CONNECTOR	
6	*2-120-604-01	REINFORCEMENT	
7	2-120-639-01	PANEL, F	
8	*2-120-603-01	BRACKET, SELECTOR	
9	X-2118-214-1	KNOB (L) ASSY, VOL	
10	2-118-268-01	NUT (M9), HEXAGON	
11	*A-7070-604-A	FR-002 BOARD, COMPLETE	
12	*A-7070-605-A	FR-003 BOARD, COMPLETE	
13	*A-7070-602-A	FR-001 BOARD, COMPLETE	
14	*A-7070-603-A	FR-004 BOARD, COMPLETE	
15	2-118-220-01	JOINT	
16	⚠.1-448-999-11	TRANSFORMER, POWER (T001)	
17	*A-7070-606-A	AC-27 BOARD, COMPLETE (AEP MODEL)	
	*A-7070-611-A	AC-27 BOARD, COMPLETE (UK, AUSTRALIAN MODEL)	
18	⚠.1-532-259-00	FUSE, TIME-LAG (F001)	
19	4-881-528-51	CASE	
20	4-847-802-00	SCREW, CASE	
21	2-120-636-21	PANEL, R	
22	⚠.3-703-244-00	BUSHING (2104), CORD	
23	⚠.1-555-795-00	CORD, POWER, EULO PLUG (AEP MODEL)	
	⚠.1-551-884-00	CORD, POWER (UK MODEL)	
	⚠.1-551-732-00	CORD, POWER (AUSTRALIAN MODEL)	
26	8-759-604-29	IC M5F7805 (IC511, 512)	
27	8-759-604-47	IC M5F7905 (IC513)	
28	*2-120-625-01	COVER, RF	
29	*A-7061-040-A	MM-5 BOARD, COMPLETE	
30	*A-7070-607-A	AC-28 BOARD, COMPLETE	
31	⚠.1-553-318-00	SWITCH, PUSH (AC POWER) (1 KEY) (S001)	
32	2-118-218-01	JOINTER	
33	2-118-215-01	BUTTON (POWER)	
34	*2-374-619-00	PLATE, BOTTOM	
35	X-3701-069-0	FOOT ASSY, M.F	
36	*2-125-901-01	LABEL, MODEL NUMBER (UK, AUSTRALIAN MODEL)	
	*2-125-902-01	LABEL, MODEL NUMBER (AEP MODEL)	
37	3-703-043-51	LABEL, CAUTION, MAIN (UK MODEL)	
38	3-701-690-00	LABEL (MADE IN JAPAN) (UK MODEL)	
39	3-703-082-21	LABEL, CAUTION (UK MODEL)	

SECTION 5
EXPLODED VIEWS

NOTE:
- –XX, –X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
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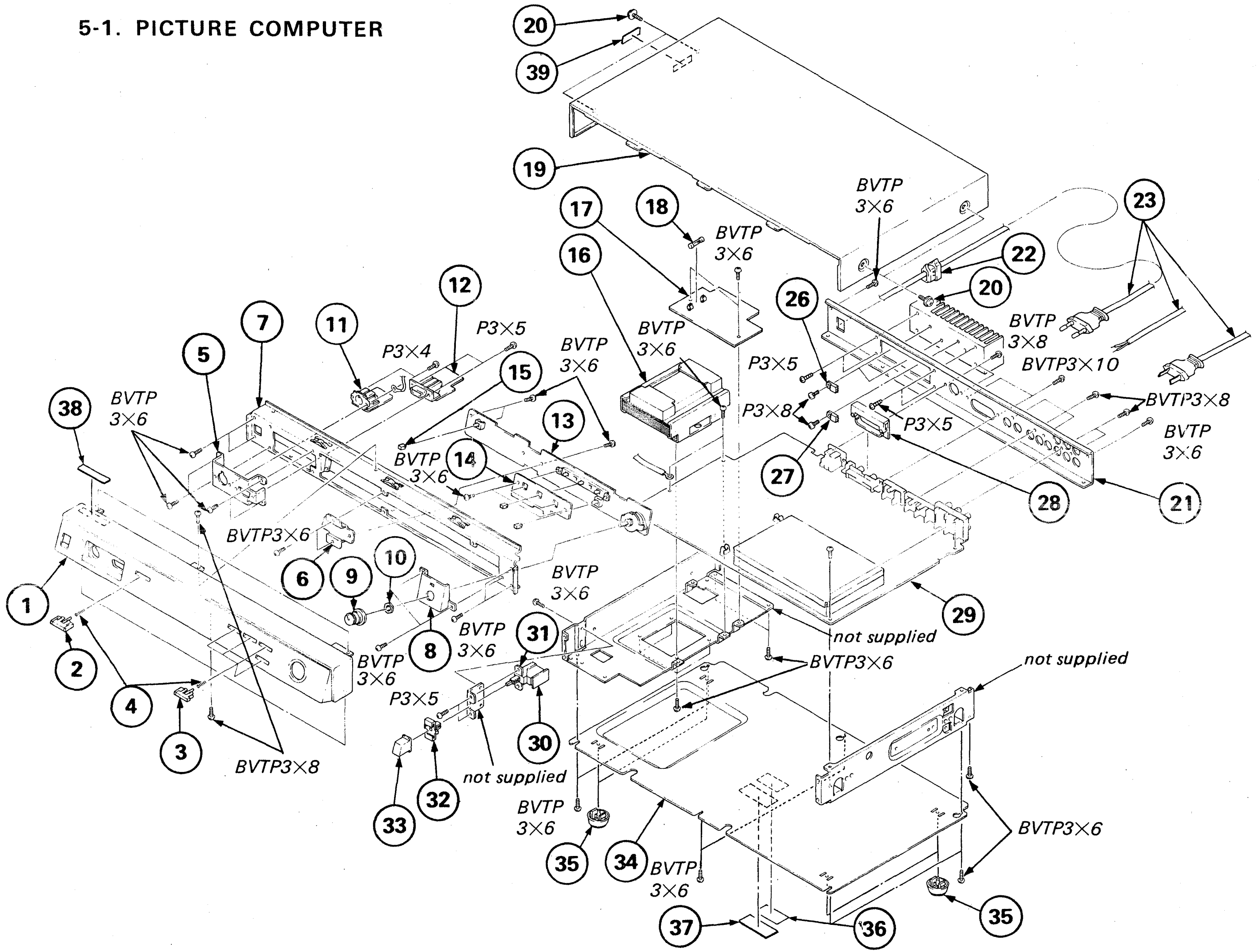
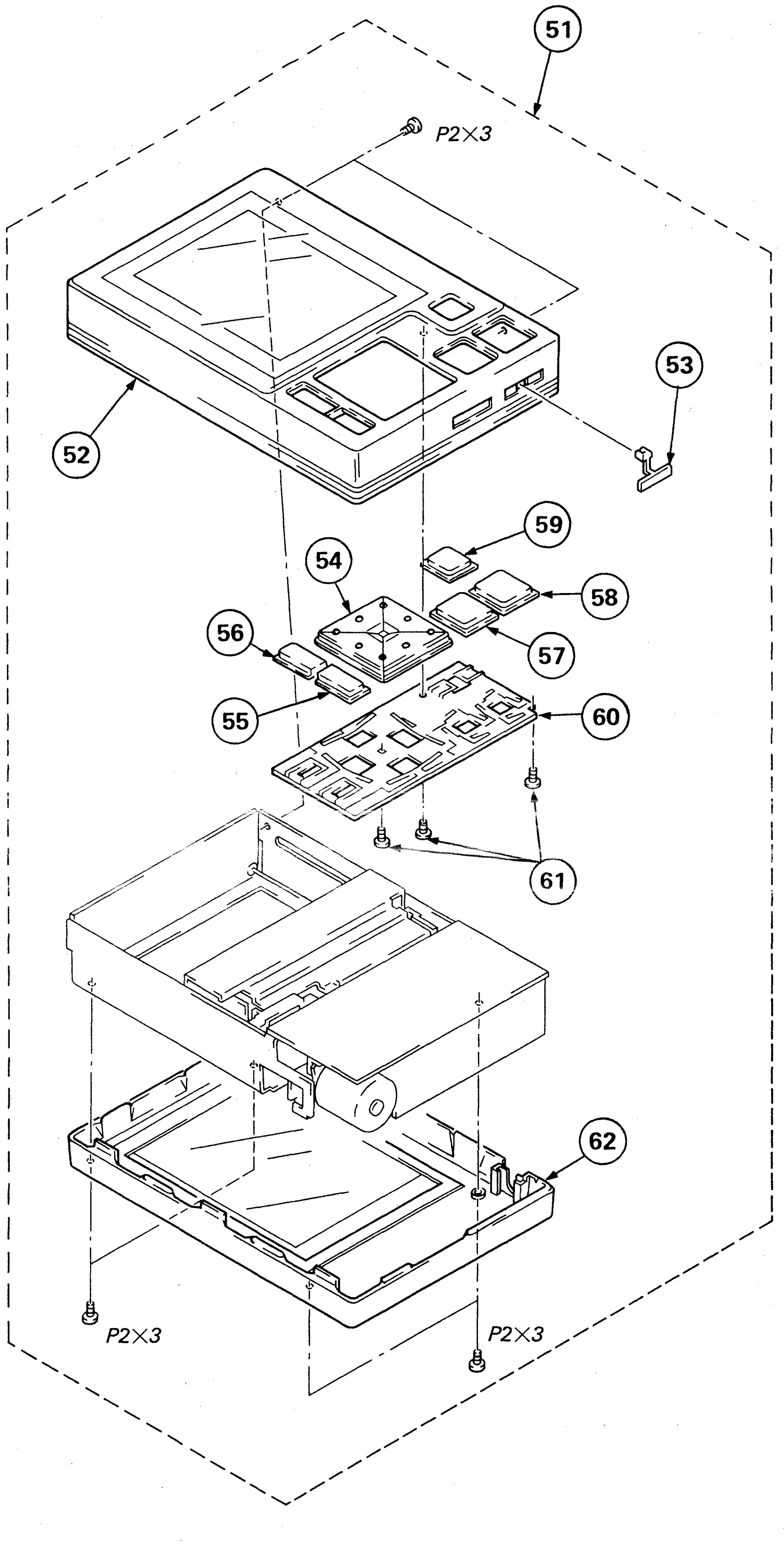
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

5-1. PICTURE COMPUTER


20
39
19
BVTP 3×6
17
18
BVTP 3×6
16
23
22
20
12
7
11
26
5
P3×4
P3×5
BVTP 3×6
BVTP 3×6
15
P3×5
P3×8
BVTP 3×8
BVTP3×10
BVTP3×8
38
BVTP 3×6
13
BVTP 3×6
14
P3×5
28
27
21
BVTP 3×6
BVTP3×6
6
9
10
1
2
4
3
BVTP3×8
BVTP 3×6
8
BVTP 3×6
31
BVTP 3×6
P3×5
29
not supplied
BVTP3×6
not supplied
30
not supplied
33
32
BVTP 3×6
35
34
BVTP 3×6
BVTP3×6
37
36
35

No.	Part No.	Description	Remark
1	X-2125-902-1	ESCUTCHEON ASSY	
2	X-2118-207-1	PUSH BUTTON (SLR) ASSY	
3	X-2118-205-1	PUSH BUTTON (SL) ASSY	
4	2-217-533-00	SPRING, COMPRESSION	
5	*2-120-634-01	BRACKET, P CONNECTOR	
6	*2-120-604-01	REINFORCEMENT	
7	2-120-639-01	PANEL, F	
8	*2-120-603-01	BRACKET, SELECTOR	
9	X-2118-214-1	KNOB (L) ASSY, VOL	
10	2-118-268-01	NUT (M9), HEXAGON	
11	*A-7070-604-A	FR-002 BOARD, COMPLETE	
12	*A-7070-605-A	FR-003 BOARD, COMPLETE	
13	*A-7070-602-A	FR-001 BOARD, COMPLETE	
14	*A-7070-603-A	FR-004 BOARD, COMPLETE	
15	2-118-220-01	JOINT	
16	⚠ .1-448-999-11	TRANSFORMER, POWER (T001)	
17	*A-7070-606-A	AC-27 BOARD, COMPLETE (AEP MODEL)	
	*A-7070-611-A	AC-27 BOARD, COMPLETE (UK, AUSTRALIAN MODEL)	
18	⚠ .1-532-259-00	FUSE, TIME-LAG (F001)	
19	4-881-528-51	CASE	
20	4-847-802-00	SCREW, CASE	
21	2-120-636-21	PANEL, R	
22	⚠ .3-703-244-00	BUSHING (2104), CORD	
23	⚠ .1-555-795-00	CORD, POWER, EULO PLUG (AEP MODEL)	
	⚠ .1-551-884-00	CORD, POWER (UK MODEL)	
	⚠ .1-551-732-00	CORD, POWER (AUSTRALIAN MODEL)	
26	8-759-604-29	IC M5F7805 (IC511, 512)	
27	8-759-604-47	IC M5F7905 (IC513)	
28	*2-120-625-01	COVER, RF	
29	*A-7061-040-A	MM-5 BOARD, COMPLETE	
30	*A-7070-607-A	AC-28 BOARD, COMPLETE	
31	⚠ .1-553-318-00	SWITCH, PUSH (AC POWER) (1 KEY) (S001)	
32	2-118-218-01	JOINTER	
33	2-118-215-01	BUTTON (POWER)	
34	*2-374-619-00	PLATE, BOTTOM	
35	X-3701-069-0	FOOT ASSY, M.F	
36	*2-125-901-01	LABEL, MODEL NUMBER (UK, AUSTRALIAN MODEL)	
	*2-125-902-01	LABEL, MODEL NUMBER (AEP MODEL)	
37	3-703-043-51	LABEL, CAUTION, MAIN (UK MODEL)	
38	3-701-690-00	LABEL (MADE IN JAPAN) (UK MODEL)	
39	3-703-082-21	LABEL, CAUTION (UK MODEL)	

5-2. IMAGE SCANNER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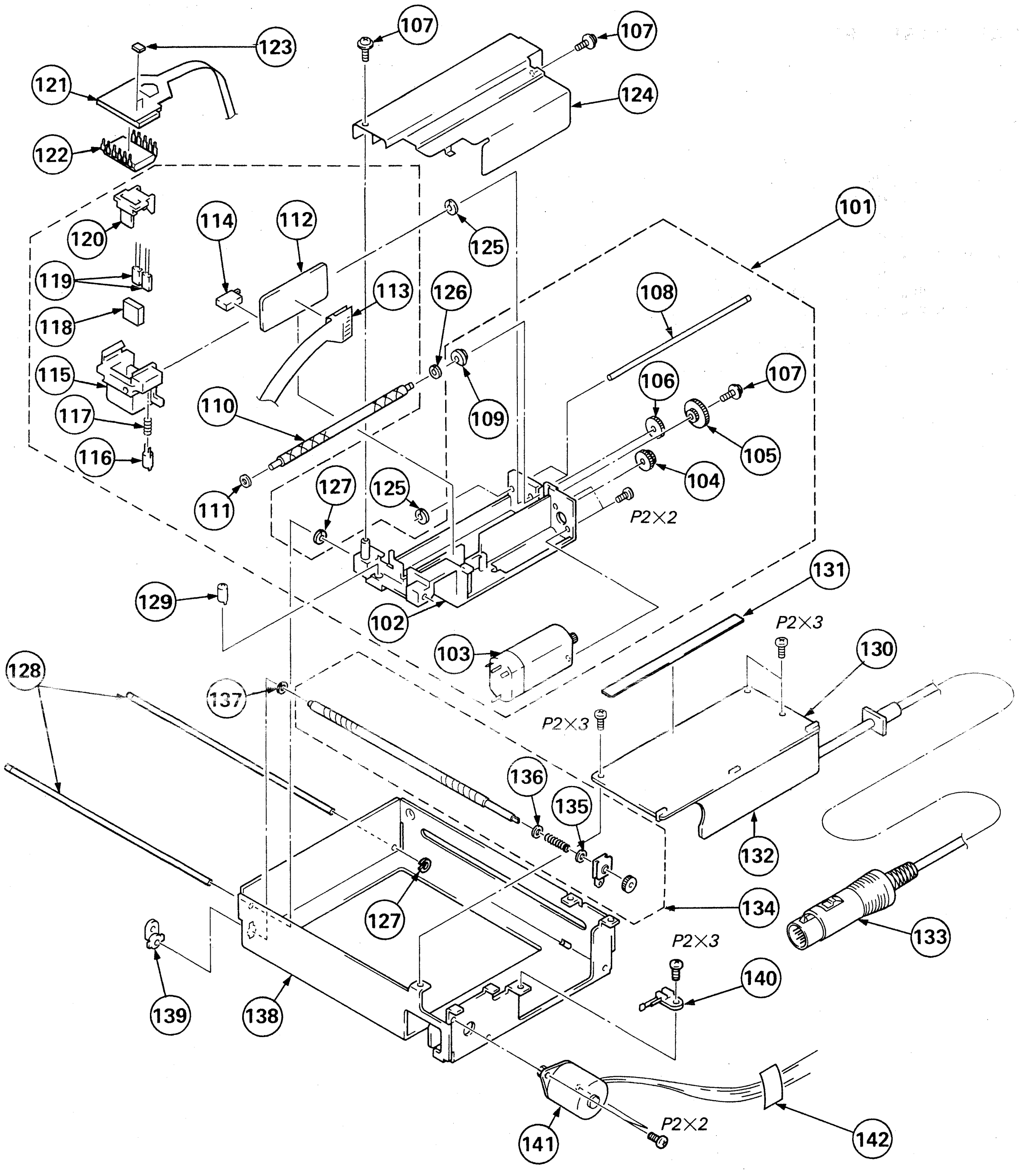
No.	Part No.	Description	Remark
51	*A-7000-314-A	SCANNER ASSY	52-62
52	X-2125-901-1	CABINET (A) ASSY, S	
53	2-120-628-01	KNOB, SLIDE	
54	X-2120-601-1	BUTTON (C) ASSY	
55	2-120-601-01	BUTTON (D) (COLOR), CONTROL	
56	2-120-601-11	BUTTON (D) (PAINT), CONTROL	
57	2-120-602-01	BUTTON (B) (DRAW), CONTROL	
58	2-120-602-11	BUTTON (B) (STOP/MODE), CONTROL	
59	2-120-608-01	BUTTON (A), CONTROL	
60	X-2120-605-1	CHASSIS ASSY, SUB	
61	3-318-201-11	SCREW (B) (1.4X3), TAPPING	
62	X-2120-609-1	CABINET (B) ASSY, S	

5-3. SCANNER CHASSIS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No.	Part No.	Description	Remark
101	A-7090-768-A	SLIDER SUB ASSY	102-120
102	X-2120-603-1	SLIDER ASSY	
103	1-541-370-11	MOTOR (PFX-13EC04A) (M901)	
104	2-120-615-01	GEAR (B), X SHAFT	
105	2-120-614-01	GEAR (C), X SHAFT	
106	2-120-616-01	GEAR (D), X SHAFT	
107	3-318-201-11	SCREW (B) (1.4X3), TAPPING	
108	2-120-617-01	SHAFT (X), GUIDE	
109	2-120-618-01	BEARING, X	
110	X-2120-602-1	SCREW (X) ASSY	
111	3-701-437-01	WASHER	
112	*A-7070-609-A	SD-801 BOARD, COMPLETE	
113	1-621-077-11	PC BOARD, CT FLEXIBLE	
114	1-570-926-11	SWITCH, MICRO (PICK UP END SW) (S801)	
115	2-120-637-01	PICK-UP	
116	2-120-612-01	PIN (X), REED	
117	2-120-611-01	SPRING, COMPRESSION	
118	2-120-652-01	ARRAY, LENS	
119	8-719-941-68	DIODE BR4543K-86 (D901, 902)	
120	2-120-630-01	CAP, LENS	
121	1-621-046-11	PC BOARD, SL-901 FLEXIBLE	
122	8-759-206-96	IC TCD104D (IC901)	
123	1-216-172-00	RES, CHIP 82 (R901, 902)	
124	2-120-632-01	COVER, SLIDER	
125	3-318-236-01	WASHER, POLY, SLIT	
126	2-640-277-11	WASHER, TEFLON	
127	3-318-323-01	RING, RETAINING (3)	
128	2-120-622-01	SHAFT (Y), GUIDE	
129	2-120-623-01	PIN (Y), REED	
130	*A-7090-774-A	SS-601 BOARD, COMPLETE	
131	*2-120-651-01	SHEET, PROTECTION	
132	*A-7070-608-A	SC-701 BOARD, COMPLETE	
133	1-558-935-21	CORD (WITH PLUG) 13P	
134	A-7090-767-A	SCREW (Y) ASSY	135, 136
135	3-701-438-01	WASHER	
136	3-701-439-01	WASHER	
137	3-701-439-11	WASHER	
138	*2-120-641-01	CHASSIS, MD	
139	2-120-624-01	BEARING (A), Y	
140	1-553-198-00	SWITCH, LEAF (ZOOM SIZE) (S612)	
141	A-7090-773-A	MOTOR ASSY, STEPPER (M903)	
142	3-831-441-11	CUSHION (B)	

5-4. HARDWARE LIST

SCREW

7-621-255-10	SCREW +P 2X3
7-621-255-15	SCREW +P 2X3
7-627-553-17	SCREW, PRECISION +P 2X2
7-627-553-38	SCREW, PRECISION +P 2X3
7-682-145-01	SCREW +P 3X4
7-682-146-01	SCREW +P 3X5
7-682-146-09	SCREW +P 3X5
7-682-147-01	SCREW +P 3X6
7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3
7-685-646-79	SCREW +BVTP 3X8 TYPE2 SLIT
7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3
7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S

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SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- −XX, −X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, U : μ, for example:
  UA...: μA..., UPA...: μPA...,
  UPB...: μPB..., UPC...: μPC...,
  UPD...: μPD...
- CAPACITORS
  MF : μF, PF : μμF
- COILS
  MMH : mH, UH : μH

Ref.No	Part No.	Description			Remark
	*A-7061-040-A	MM-005 BOARD, COMPLETE ************************			
	*3-695-075-01	PIN, LEAD, COATING			
		CAPACITOR			
C100	1-162-851-51	CERAMIC	0.1MF	10%	16V
C101	1-123-875-11	ELECT	10MF	20%	50V
C102	1-101-004-00	CERAMIC	0.01MF		50V
C103	1-101-004-00	CERAMIC	0.01MF		50V
C104	1-123-875-11	ELECT	10MF	20%	50V
C105	1-123-875-11	ELECT	10MF	20%	50V
C106	1-101-004-00	CERAMIC	0.01MF		50V
C107	1-102-963-00	CERAMIC	33PF	5%	50V
C108	1-101-361-00	CERAMIC	150PF	5%	50V
C109	1-123-875-11	ELECT	10MF	20%	50V
C110	1-162-851-51	CERAMIC	0.1MF	10%	16V
C111	1-124-908-11	ELECT	22MF	20%	25V
C112	1-130-471-00	MYLAR	0.001MF	5%	50V
C113	1-123-875-11	ELECT	10MF	20%	50V
C114	1-123-875-11	ELECT	10MF	20%	50V
C115	1-123-875-11	ELECT	10MF	20%	50V
C116	1-123-875-11	ELECT	10MF	20%	50V
C117	1-101-004-00	CERAMIC	0.01MF		50V
C118	1-102-980-00	CERAMIC	270PF	5%	50V
C119	1-124-464-11	ELECT	0.22MF	20%	50V
C120	1-131-341-00	TANTALUM	0.1MF	10%	35V
C121	1-124-908-11	ELECT	22MF	20%	25V
C122	1-130-487-00	MYLAR	0.022MF	5%	50V
C123	1-102-824-00	CERAMIC	470PF	5%	50V
C124	1-124-443-00	ELECT	100MF	20%	10V
C125	1-123-875-11	ELECT	10MF	20%	50V
C126	1-130-477-00	MYLAR	0.0033MF	5%	50V
C127	1-123-875-11	ELECT	10MF	20%	50V
C128	1-130-468-00	MYLAR	560PF	5%	50V
C129	1-101-005-00	CERAMIC	0.022MF		50V
C130	1-130-470-00	MYLAR	820PF	5%	50V
C131	1-130-467-00	MYLAR	470PF	5%	50V
C132	1-101-004-00	CERAMIC	0.01MF		50V
C133	1-102-980-00	CERAMIC	270PF	5%	50V
C134	1-162-851-51	CERAMIC	0.1MF	10%	16V
C135	1-123-875-11	ELECT	10MF	20%	50V
C136	1-162-851-51	CERAMIC	0.1MF	10%	16V
C137	1-101-004-00	CERAMIC	0.01MF		50V
C138	1-124-446-11	ELECT	47MF	20%	10V
C139	1-102-951-00	CERAMIC	15PF	5%	50V
C140	1-130-487-00	MYLAR	0.022MF	5%	50V
C141	1-123-875-11	ELECT	10MF	20%	50V
C142	1-101-004-00	CERAMIC	0.01MF		50V
C143	1-123-875-11	ELECT	10MF	20%	50V
C144	1-162-851-51	CERAMIC	0.1MF	10%	16V
C145	1-130-481-00	MYLAR	0.0068MF	5%	50V
C146	1-130-485-00	MYLAR	0.015MF	5%	50V
C147	1-130-022-00	FILM	0.0022MF	5%	50V
C148	1-130-474-00	MYLAR	0.0018MF	5%	50V
C149	1-130-473-00	MYLAR	0.0015MF	5%	50V
C150	1-124-927-11	ELECT	4.7MF	20%	50V
C151	1-124-927-11	ELECT	4.7MF	20%	50V
C152	1-123-875-11	ELECT	10MF	20%	50V
C153	1-101-004-00	CERAMIC	0.01MF		50V
C154	1-102-973-00	CERAMIC	100PF	5%	50V
C155	1-124-499-11	ELECT	1MF	20%	50V
C156	1-123-875-11	ELECT	10MF	20%	50V
C157	1-101-004-00	CERAMIC	0.01MF		50V
C158	1-101-004-00	CERAMIC	0.01MF		50V
C160	1-101-004-00	CERAMIC	0.01MF		50V
C161	1-124-902-00	ELECT	0.47MF	20%	50V
C162	1-124-499-11	ELECT	1MF	20%	50V
C163	1-130-471-00	MYLAR	0.001MF	5%	50V
C164	1-130-471-00	MYLAR	0.001MF	5%	50V
C165	1-136-159-00	MYLAR	0.033MF	10%	50V
C166	1-130-481-00	MYLAR	0.0068MF	5%	50V
C167	1-124-446-11	ELECT	47MF	20%	10V
C168	1-130-487-00	MYLAR	0.022MF	5%	50V
C169	1-124-499-11	ELECT	1MF	20%	50V
C170	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C171	1-101-004-00	CERAMIC	0.01MF		50V
C172	1-130-468-00	MYLAR	560PF	5%	50V
C173	1-101-004-00	CERAMIC	0.01MF		50V
C174	1-123-875-11	ELECT	10MF	20%	50V
C175	1-101-004-00	CERAMIC	0.01MF		50V
C176	1-101-004-00	CERAMIC	0.01MF		50V
C177	1-131-348-00	TANTALUM	1.5MF	10%	20V
C178	1-102-961-00	CERAMIC	27PF	5%	50V
C179	1-101-004-00	CERAMIC	0.01MF		50V
C180	1-101-004-00	CERAMIC	0.01MF		50V
C181	1-102-976-00	CERAMIC	180PF	5%	50V
C182	1-102-973-00	CERAMIC	100PF	5%	50V
C183	1-123-875-11	ELECT	10MF	20%	50V
C184	1-101-004-00	CERAMIC	0.01MF		50V
C185	1-130-483-00	MYLAR	0.01MF	5%	50V
C186	1-124-499-11	ELECT	1MF	20%	50V
C187	1-131-368-00	TANTALUM	3.3MF	10%	16V
C188	1-123-875-11	ELECT	10MF	20%	50V
C189	1-101-004-00	CERAMIC	0.01MF		50V
C190	1-123-875-11	ELECT	10MF	20%	50V
C191	1-123-875-11	ELECT	10MF	20%	50V
C192	1-101-004-00	CERAMIC	0.01MF		50V
C193	1-162-851-51	CERAMIC	0.1MF	10%	16V
C194	1-162-851-51	CERAMIC	0.1MF	10%	16V
C195	1-162-851-51	CERAMIC	0.1MF	10%	16V
C196	1-101-004-00	CERAMIC	0.01MF		50V
C197	1-123-875-11	ELECT	10MF	20%	50V
C198	1-101-004-00	CERAMIC	0.01MF		50V
C199	1-124-443-00	ELECT	100MF	20%	10V
C200	1-101-004-00	CERAMIC	0.01MF		50V
C201	1-124-443-00	ELECT	100MF	20%	10V
C202	1-123-875-11	ELECT	10MF	20%	50V

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Ref.No	Part No.	Description			Remark
C203	1-123-875-11	ELECT	10MF	20%	50V
C204	1-101-004-00	CERAMIC	0.01MF		50V
C205	1-123-875-11	ELECT	10MF	20%	50V
C206	1-101-004-00	CERAMIC	0.01MF		50V
C207	1-101-004-00	CERAMIC	0.01MF		50V
C208	1-123-875-11	ELECT	10MF	20%	50V
C210	1-102-971-00	CERAMIC	82PF	5%	50V
C211	1-123-875-11	ELECT	10MF	20%	50V
C212	1-124-925-11	ELECT	2.2MF	20%	50V
C214	1-102-961-00	CERAMIC	27PF	5%	50V
C215	1-123-875-11	ELECT	10MF	20%	50V
C216	1-102-973-00	CERAMIC	100PF	5%	50V
C217	1-123-875-11	ELECT	10MF	20%	50V
C218	1-123-875-11	ELECT	10MF	20%	50V
C219	1-102-973-00	CERAMIC	100PF	5%	50V
C220	1-123-875-11	ELECT	10MF	20%	50V
C221	1-102-961-00	CERAMIC	27PF	5%	50V
C222	1-123-875-11	ELECT	10MF	20%	50V
C223	1-101-004-00	CERAMIC	0.01MF		50V
C224	1-123-875-11	ELECT	10MF	20%	50V
C225	1-101-004-00	CERAMIC	0.01MF		50V
C226	1-124-925-11	ELECT	2.2MF	20%	50V
C227	1-101-004-00	CERAMIC	0.01MF		50V
C228	1-101-004-00	CERAMIC	0.01MF		50V
C229	1-123-875-11	ELECT	10MF	20%	50V
C230	1-101-004-00	CERAMIC	0.01MF		50V
C231	1-101-004-00	CERAMIC	0.01MF		50V
C232	1-123-875-11	ELECT	10MF	20%	50V
C233	1-124-443-00	ELECT	100MF	20%	10V
C234	1-101-004-00	CERAMIC	0.01MF		50V
C235	1-124-446-11	ELECT	47MF	20%	10V
C236	1-102-944-00	CERAMIC	7PF	1PF	50V
C237	1-123-875-11	ELECT	10MF	20%	50V
C238	1-101-004-00	CERAMIC	0.01MF		50V
C239	1-123-875-11	ELECT	10MF	20%	50V
C240	1-123-875-11	ELECT	10MF	20%	50V
C241	1-102-971-00	CERAMIC	82PF	5%	50V
C242	1-102-953-00	CERAMIC	18PF	5%	50V
C244	1-101-004-00	CERAMIC	0.01MF		50V
C245	1-102-951-00	CERAMIC	15PF	5%	50V
C301	1-124-472-11	ELECT	470MF	20%	6.3V
C302	1-101-004-00	CERAMIC	0.01MF		50V
C303	1-101-005-00	CERAMIC	0.022MF		50V
C305	1-101-888-00	CERAMIC	68PF	5%	50V
C306	1-101-888-00	CERAMIC	68PF	5%	50V
C307	1-101-004-00	CERAMIC	0.01MF		50V
C308	1-101-004-00	CERAMIC	0.01MF		50V
C310	1-102-110-00	CERAMIC	220PF	10%	50V
C311	1-130-491-00	MYLAR	0.047MF	5%	50V
C312	1-130-489-00	MYLAR	0.033MF	5%	50V
C313	1-162-851-51	CERAMIC	0.1MF	10%	16V
C314	1-162-851-51	CERAMIC	0.1MF	10%	16V
C315	1-162-851-51	CERAMIC	0.1MF	10%	16V
C316	1-162-851-51	CERAMIC	0.1MF	10%	16V
C317	1-162-851-51	CERAMIC	0.1MF	10%	16V
C318	1-162-851-51	CERAMIC	0.1MF	10%	16V
C319	1-101-005-00	CERAMIC	0.022MF		50V
C320	1-101-005-00	CERAMIC	0.022MF		50V
C321	1-162-851-51	CERAMIC	0.1MF	10%	16V
C322	1-123-875-11	ELECT	10MF	20%	50V
C323	1-162-851-51	CERAMIC	0.1MF	10%	16V
C324	1-124-120-11	ELECT	220MF	20%	16V
C325	1-162-851-51	CERAMIC	0.1MF	10%	16V
C329	1-162-851-51	CERAMIC	0.1MF	10%	16V
C330	1-162-851-51	CERAMIC	0.1MF	10%	16V
C331	1-124-446-11	ELECT	47MF	20%	10V
C333	1-124-254-00	ELECT	0.68MF	20%	50V
C334	1-124-472-11	ELECT	470MF	20%	6.3V
C336	1-102-115-00	CERAMIC	560PF	10%	50V
C337	1-102-115-00	CERAMIC	560PF	10%	50V
C338	1-102-115-00	CERAMIC	560PF	10%	50V
C339	1-102-115-00	CERAMIC	560PF	10%	50V
C341	1-102-112-00	CERAMIC	330PF	10%	50V
C342	1-102-112-00	CERAMIC	330PF	10%	50V
C343	1-102-112-00	CERAMIC	330PF	10%	50V
C344	1-101-004-00	CERAMIC	0.01MF		50V
C345	1-101-004-00	CERAMIC	0.01MF		50V
C346	1-101-004-00	CERAMIC	0.01MF		50V
C347	1-101-004-00	CERAMIC	0.01MF		50V
C401	1-102-110-00	CERAMIC	220PF	10%	50V
C402	1-102-110-00	CERAMIC	220PF	10%	50V
C403	1-123-875-11	ELECT	10MF	20%	50V
C404	1-123-875-11	ELECT	10MF	20%	50V
C405	1-123-875-11	ELECT	10MF	20%	50V
C510	1-125-432-11	ELECT(BLOCK)	10000MF	20%	16V
C511	1-123-875-11	ELECT	10MF	20%	50V
C512	1-123-875-11	ELECT	10MF	20%	50V
C513	1-124-957-21	ELECT	6800MF	20%	16V
C514	1-123-875-11	ELECT	10MF	20%	50V
C515	1-123-875-11	ELECT	10MF	20%	50V
C516	1-124-898-11	ELECT	4700MF	20%	16V
C517	1-123-875-11	ELECT	10MF	20%	50V
C518	1-123-875-11	ELECT	10MF	20%	50V
C519	1-123-875-11	ELECT	10MF	20%	50V
C521	1-124-480-11	ELECT	470MF	20%	25V
C522	1-124-557-11	ELECT	1000MF	20%	25V
C523	1-123-875-11	ELECT	10MF	20%	50V
C524	1-123-875-11	ELECT	10MF	20%	50V

CONNECTOR

CN101	*1-564-007-00	PIN, CONNECTOR 8P
CN301	*1-564-003-00	PIN, CONNECTOR 4P
CN302	*1-564-009-00	PIN, CONNECTOR 10P
CN303	*1-564-008-00	PIN, CONNECTOR 9P
CN501	*1-560-891-00	PIN, CONNECTOR 3P

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
CN502	*1-560-891-00	PIN, CONNECTOR 3P	
CN503	*1-560-891-00	PIN, CONNECTOR 3P	
CN504	*1-560-891-00	PIN, CONNECTOR 3P	

JACK

Ref.No	Part No.	Description	Remark
CNJ401	*1-563-524-21	JACK, PIN 6P	
CNJ402	1-507-845-41	JACK, PIN (A)	
CNJ403	1-563-523-21	JACK, PIN 2P	
CNJ404	1-537-005-11	JACK BOARD	
CNJ405	1-563-508-11	CONNECTOR, DIN 8P	

TRIMMER

Ref.No	Part No.	Description	Remark
CV101	1-141-227-00	CAP, CERAMIC TRIMMER	
CV102	1-141-304-21	TRIMAR, CERAMIC	
CV103	1-141-260-00	TRIMAR, CERAMIC	

DIODE

Ref.No	Part No.	Description	Remark
D101	8-719-911-19	DIODE 1SS119	
D102	8-719-911-19	DIODE 1SS119	
D103	8-719-920-97	DIODE 1T25-3	
D104	8-719-911-19	DIODE 1SS119	
D105	8-719-911-19	DIODE 1SS119	
D106	8-719-911-19	DIODE 1SS119	
D107	8-719-911-19	DIODE 1SS119	
D301	8-719-911-19	DIODE 1SS119	
D304	8-719-911-19	DIODE 1SS119	
D305	8-719-911-19	DIODE 1SS119	
D307	8-719-911-19	DIODE 1SS119	
D308	8-719-911-19	DIODE 1SS119	
D309	8-719-911-19	DIODE 1SS119	
D401	8-719-911-19	DIODE 1SS119	
D402	8-719-911-19	DIODE 1SS119	
D403	8-719-911-19	DIODE 1SS119	
D501⚠	.8-719-200-02	DIODE 10E-2	
D502⚠	.8-719-200-02	DIODE 10E-2	
D503⚠	.8-719-500-35	DIODE D2SB10	
D504⚠	.8-719-200-02	DIODE 10E-2	
D505⚠	.8-719-200-02	DIODE 10E-2	
D506	8-719-110-12	DIODE RD9.1ES	
D507	8-719-911-19	DIODE 1SS119	
D508⚠	.8-719-160-29	DIODE RD6.2FB1	
D509⚠	.8-719-160-29	DIODE RD6.2FB1	
D510⚠	.8-719-200-82	DIODE 11ES2	
D511	8-719-911-19	DIODE 1SS119	
D512⚠	.8-719-200-82	DIODE 11ES2	
D513⚠	.8-719-200-82	DIODE 11ES2	

DELAY LINE

Ref.No	Part No.	Description	Remark
DL001	1-415-238-00	DELAY LINE	
DL002	1-415-238-00	DELAY LINE	

FILTER

Ref.No	Part No.	Description	Remark
FB116	1-421-927-11	FILTER, NOISE	
FB119	1-421-927-11	FILTER, NOISE	
FB121	1-421-927-11	FILTER, NOISE	
FB322	1-421-927-11	FILTER, NOISE	
FB323	1-421-927-11	FILTER, NOISE	

BAND PASS FILTER

Ref.No	Part No.	Description	Remark
FL001	1-235-230-00	FILTER, BAND PASS	
FL301	1-236-121-11	FILTER, BAND PASS	

IC

Ref.No	Part No.	Description	Remark
IC101	8-759-240-53	IC TC4053BP	
IC102	8-759-103-19	IC UPC319C	
IC103	8-759-133-90	IC UPC339C	
IC104	8-759-618-48	IC M51848L	
IC105	8-759-902-21	IC SN74LS221N	
IC106	8-759-902-21	IC SN74LS221N	
IC107	8-759-902-21	IC SN74LS221N	
IC108	8-759-202-13	IC TC74HCU04P	
IC109	8-757-930-11	IC CX-7930A	
IC110	8-759-314-41	IC HA11441	
IC111	8-759-603-53	IC M51271SP	
IC112	8-759-240-53	IC TC4053BP	
IC113	8-759-990-82	IC TL082CP	
IC114	8-752-030-77	IC V7040	
IC115	8-759-271-58	IC TA7158P	
IC116	8-759-271-58	IC TA7158P	
IC301	8-759-970-24	IC RF65C027Y-0005	
IC302	8-759-970-25	IC RF5C17Y	
IC303	8-759-944-62	IC MB81464-12PSZ	
IC304	8-759-944-62	IC MB81464-12PSZ	
IC305	8-759-944-62	IC MB81464-12PSZ	
IC306	8-759-944-62	IC MB81464-12PSZ	
IC307	8-759-974-17	IC SN7417N	
IC308	8-759-974-17	IC SN7417N	
IC309	8-759-112-94	IC UPD1510ACU-608	
IC311	8-759-202-78	IC TC74HC51P	
IC312	8-759-202-12	IC TC74HC02P	
IC313	8-759-202-14	IC TC74HC08P	
IC314	8-759-007-21	IC MC74HC4053N	
IC315	8-759-202-78	IC TC74HC51P	
IC316	8-759-145-58	IC UPC4558C	
IC317	8-759-202-14	IC TC74HC08P	
IC318	8-759-000-99	IC MC74HC74N	
IC319	8-759-603-69	IC M51957BL	
IC401	8-759-240-53	IC TC4053BP	
IC402	8-759-145-58	IC UPC4558C	
IC501	8-759-604-39	IC M5F78M12	

COIL

Ref.No	Part No.	Description	Remark
L101	1-410-484-21	INDUCTOR 150UH	
L102	1-408-411-00	INDUCTOR 15UH	
L103	1-410-480-21	INDUCTOR 68UH	

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Ref.No	Part No.	Description		Remark
L104	1-410-478-11	INDUCTOR	47UH	
L105	1-410-478-11	INDUCTOR	47UH	
L106	1-410-478-11	INDUCTOR	47UH	
L107	1-410-473-11	INDUCTOR	18UH	
L108	1-410-481-21	INDUCTOR	82UH	
		IC LINK		
PS301⚠	1-532-685-00	LINK, IC (ICP-N20)		
PS302⚠	1-532-605-00	LINK, IC (ICP-N10)		
PS303⚠	1-532-727-11	LINK, IC (ICP-N10)		
PS501⚠	1-532-686-00	LINK, IC (ICP-N75)		
PS502⚠	1-532-686-00	LINK, IC (ICP-N75)		
PS503⚠	1-532-727-11	LINK, IC (ICP-N5)		
PS504⚠	1-532-679-00	LINK, IC (ICP-N15)		
PS505⚠	1-532-679-00	LINK, IC (ICP-N15)		
		TRANSISTOR		
Q101	8-729-600-27	TRANSISTOR	2SC634SP	
Q102	8-729-600-27	TRANSISTOR	2SC634SP	
Q103	8-729-600-27	TRANSISTOR	2SC634SP	
Q104	8-729-600-27	TRANSISTOR	2SC634SP	
Q105	8-729-600-27	TRANSISTOR	2SC634SP	
Q106	8-729-204-83	TRANSISTOR	2SA1048-GR	
Q107	8-729-600-27	TRANSISTOR	2SC634SP	
Q108	8-729-204-83	TRANSISTOR	2SA1048-GR	
Q109	8-729-600-27	TRANSISTOR	2SC634SP	
Q110	8-729-600-27	TRANSISTOR	2SC634SP	
Q111	8-729-900-65	TRANSISTOR	DTA144ES	
Q112	8-729-900-89	TRANSISTOR	DTC144ES	
Q113	8-729-600-27	TRANSISTOR	2SC634SP	
Q114	8-729-900-89	TRANSISTOR	DTC144ES	
Q115	8-729-600-27	TRANSISTOR	2SC634SP	
Q116	8-729-105-71	TRANSISTOR	2SK523-K2	
Q117	8-729-204-83	TRANSISTOR	2SA1048-GR	
Q118	8-729-600-27	TRANSISTOR	2SC634SP	
Q119	8-729-204-83	TRANSISTOR	2SA1048-GR	
Q120	8-729-204-83	TRANSISTOR	2SA1048-GR	
Q121	8-729-600-27	TRANSISTOR	2SC634SP	
Q122	8-729-600-27	TRANSISTOR	2SC634SP	
Q123	8-729-600-27	TRANSISTOR	2SC634SP	
Q124	8-729-600-27	TRANSISTOR	2SC634SP	
Q125	8-729-600-27	TRANSISTOR	2SC634SP	
Q130	8-729-600-27	TRANSISTOR	2SC634SP	
Q131	8-729-600-27	TRANSISTOR	2SC634SP	
Q132	8-729-204-83	TRANSISTOR	2SA1048-GR	
Q133	8-729-600-27	TRANSISTOR	2SC634SP	
Q134	8-729-600-27	TRANSISTOR	2SC634SP	
Q135	8-729-600-27	TRANSISTOR	2SC634SP	
Q136	8-729-204-83	TRANSISTOR	2SA1048-GR	
Q137	8-729-600-27	TRANSISTOR	2SC634SP	
Q138	8-729-600-27	TRANSISTOR	2SC634SP	
Q139	8-729-600-27	TRANSISTOR	2SC634SP	
Q140	8-729-600-27	TRANSISTOR	2SC634SP	

Ref.No	Part No.	Description				Remark
Q141	8-729-600-27	TRANSISTOR	2SC634SP			
Q142	8-729-204-83	TRANSISTOR	2SA1048-GR			
Q143	8-729-900-89	TRANSISTOR	DTC144ES			
Q144	8-729-600-27	TRANSISTOR	2SC634SP			
Q145	8-729-600-27	TRANSISTOR	2SC634SP			
Q301	8-729-600-27	TRANSISTOR	2SC634SP			
Q302	8-729-204-83	TRANSISTOR	2SA1048-GR			
Q303	8-729-113-33	TRANSISTOR	2SB733-4			
Q304	8-729-600-27	TRANSISTOR	2SC634SP			
Q305	8-729-900-89	TRANSISTOR	DTC144ES			
Q306	8-729-600-27	TRANSISTOR	2SC634SP			
Q401	8-729-115-30	TRANSISTOR	2SK105A-30			
Q402	8-729-115-30	TRANSISTOR	2SK105A-30			
Q403	8-729-115-30	TRANSISTOR	2SK105A-30			
Q501	8-729-178-54	TRANSISTOR	2SC2785-F			
Q502	8-729-204-83	TRANSISTOR	2SA1048-GR			
		RESISTOR				
R089	1-249-417-11	CARBON	1K	5%	1/4W	
R090	1-249-417-11	CARBON	1K	5%	1/4W	
R091	1-249-417-11	CARBON	1K	5%	1/4W	
R092	1-249-417-11	CARBON	1K	5%	1/4W	
R093	1-249-417-11	CARBON	1K	5%	1/4W	
R094	1-249-417-11	CARBON	1K	5%	1/4W	
R095	1-249-417-11	CARBON	1K	5%	1/4W	
R096	1-249-417-11	CARBON	1K	5%	1/4W	
R098	1-215-493-00	CARBON	1M	5%	1/4W	
R099	1-215-493-00	CARBON	1M	5%	1/4W	
R100	1-247-883-00	CARBON	150K	5%	1/4W	
R101	1-215-394-00	CARBON	75	5%	1/4W	
R102	1-215-394-00	CARBON	75	5%	1/4W	
R103	1-249-417-11	CARBON	1K	5%	1/4W	
R104	1-249-417-11	CARBON	1K	5%	1/4W	
R105	1-249-421-11	CARBON	2.2K	5%	1/4W	
R106	1-249-413-11	CARBON	470	5%	1/4W	
R107	1-249-417-11	CARBON	1K	5%	1/4W	
R108	1-249-413-11	CARBON	470	5%	1/4W	
R109	1-249-420-11	CARBON	1.8K	5%	1/4W	
R110	1-249-419-11	CARBON	1.5K	5%	1/4W	
R111	1-249-409-11	CARBON	220	5%	1/4W	
R112	1-249-419-11	CARBON	1.5K	5%	1/4W	
R113	1-249-429-11	CARBON	10K	5%	1/4W	
R114	1-249-413-11	CARBON	470	5%	1/4W	
R115	1-249-438-11	CARBON	56K	5%	1/4W	
R116	1-249-423-11	CARBON	3.3K	5%	1/4W	
R117	1-249-423-11	CARBON	3.3K	5%	1/4W	
R118	1-249-409-11	CARBON	220	5%	1/4W	
R119	1-249-409-11	CARBON	220	5%	1/4W	
R120	1-249-419-11	CARBON	1.5K	5%	1/4W	
R121	1-215-424-00	CARBON	1.3K	5%	1/4W	
R122	1-215-422-00	CARBON	1.1K	5%	1/4W	
R123	1-249-418-11	CARBON	1.2K	5%	1/4W	
R124	1-249-419-11	CARBON	1.5K	5%	1/4W	

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Ref.No	Part No.	Description				Remark
R125	1-249-415-11	CARBON	680	5%	1/4W	
R126	1-249-419-11	CARBON	1.5K	5%	1/4W	
R127	1-249-419-11	CARBON	1.5K	5%	1/4W	
R128	1-249-439-11	CARBON	68K	5%	1/4W	
R129	1-249-419-11	CARBON	1.5K	5%	1/4W	
R130	1-249-417-11	CARBON	1K	5%	1/4W	
R131	1-249-420-11	CARBON	1.8K	5%	1/4W	
R132	1-249-441-11	CARBON	100K	5%	1/4W	
R133	1-247-883-00	CARBON	150K	5%	1/4W	
R134	1-215-493-00	CARBON	1M	5%	1/4W	
R135	1-249-423-11	CARBON	3.3K	5%	1/4W	
R136	1-249-420-11	CARBON	1.8K	5%	1/4W	
R137	1-249-417-11	CARBON	1K	5%	1/4W	
R138	1-249-416-11	CARBON	820	5%	1/4W	
R139	1-249-425-11	CARBON	4.7K	5%	1/4W	
R140	1-249-425-11	CARBON	4.7K	5%	1/4W	
R141	1-249-419-11	CARBON	1.5K	5%	1/4W	
R142	1-249-431-11	CARBON	15K	5%	1/4W	
R143	1-249-417-11	CARBON	1K	5%	1/4W	
R144	1-249-431-11	CARBON	15K	5%	1/4W	
R145	1-249-420-11	CARBON	1.8K	5%	1/4W	
R146	1-249-441-11	CARBON	100K	5%	1/4W	
R147	1-249-429-11	CARBON	10K	5%	1/4W	
R148	1-249-430-11	CARBON	12K	5%	1/4W	
R149	1-215-493-00	CARBON	1M	5%	1/4W	
R150	1-215-493-00	CARBON	1M	5%	1/4W	
R151	1-215-493-00	CARBON	1M	5%	1/4W	
R152	1-215-493-00	CARBON	1M	5%	1/4W	
R153	1-249-409-11	CARBON	220	5%	1/4W	
R154	1-249-413-11	CARBON	470	5%	1/4W	
R155	1-249-426-11	CARBON	5.6K	5%	1/4W	
R156	1-249-419-11	CARBON	1.5K	5%	1/4W	
R157	1-247-895-00	CARBON	470K	5%	1/4W	
R158	1-249-419-11	CARBON	1.5K	5%	1/4W	
R159	1-249-425-11	CARBON	4.7K	5%	1/4W	
R160	1-249-430-11	CARBON	12K	5%	1/4W	
R161	1-249-439-11	CARBON	68K	5%	1/4W	
R162	1-249-425-11	CARBON	4.7K	5%	1/4W	
R163	1-249-397-11	CARBON	22	5%	1/4W	
R164	1-249-431-11	CARBON	15K	5%	1/4W	
R165	1-249-421-11	CARBON	2.2K	5%	1/4W	
R166	1-249-413-11	CARBON	470	5%	1/4W	
R167	1-249-433-11	CARBON	22K	5%	1/4W	
R168	1-249-435-11	CARBON	33K	5%	1/4W	
R169	1-249-411-11	CARBON	330	5%	1/4W	
R170	1-249-417-11	CARBON	1K	5%	1/4W	
R171	1-249-417-11	CARBON	1K	5%	1/4W	
R172	1-249-431-11	CARBON	15K	5%	1/4W	
R173	1-249-431-11	CARBON	15K	5%	1/4W	
R174	1-249-433-11	CARBON	22K	5%	1/4W	
R175	1-249-440-11	CARBON	82K	5%	1/4W	
R176	1-249-433-11	CARBON	22K	5%	1/4W	
R177	1-249-421-11	CARBON	2.2K	5%	1/4W	
R178	1-249-436-11	CARBON	39K	5%	1/4W	
R179	1-249-425-11	CARBON	4.7K	5%	1/4W	
R180	1-249-411-11	CARBON	330	5%	1/4W	
R181	1-249-419-11	CARBON	1.5K	5%	1/4W	
R182	1-249-403-11	CARBON	68	5%	1/4W	
R183	1-249-405-11	CARBON	100	5%	1/4W	
R184	1-249-425-11	CARBON	4.7K	5%	1/4W	
R185	1-249-413-11	CARBON	470	5%	1/4W	
R186	1-249-425-11	CARBON	4.7K	5%	1/4W	
R187	1-249-413-11	CARBON	470	5%	1/4W	
R188	1-249-397-11	CARBON	22	5%	1/4W	
R189	1-249-413-11	CARBON	470	5%	1/4W	
R190	1-249-417-11	CARBON	1K	5%	1/4W	
R191	1-249-435-11	CARBON	33K	5%	1/4W	
R192	1-249-435-11	CARBON	33K	5%	1/4W	
R193	1-249-413-11	CARBON	470	5%	1/4W	
R194	1-249-413-11	CARBON	470	5%	1/4W	
R195	1-249-417-11	CARBON	1K	5%	1/4W	
R196	1-249-419-11	CARBON	1.5K	5%	1/4W	
R197	1-249-413-11	CARBON	470	5%	1/4W	
R198	1-249-421-11	CARBON	2.2K	5%	1/4W	
R199	1-249-417-11	CARBON	1K	5%	1/4W	
R200	1-249-421-11	CARBON	2.2K	5%	1/4W	
R201	1-249-423-11	CARBON	3.3K	5%	1/4W	
R202	1-249-425-11	CARBON	4.7K	5%	1/4W	
R203	1-249-430-11	CARBON	12K	5%	1/4W	
R204	1-249-413-11	CARBON	470	5%	1/4W	
R205	1-249-423-11	CARBON	3.3K	5%	1/4W	
R206	1-215-493-00	CARBON	1M	5%	1/4W	
R207	1-249-419-11	CARBON	1.5K	5%	1/4W	
R208	1-249-420-11	CARBON	1.8K	5%	1/4W	
R209	1-249-417-11	CARBON	1K	5%	1/4W	
R210	1-249-421-11	CARBON	2.2K	5%	1/4W	
R211	1-249-421-11	CARBON	2.2K	5%	1/4W	
R212	1-249-414-11	CARBON	560	5%	1/4W	
R213	1-249-417-11	CARBON	1K	5%	1/4W	
R214	1-249-421-11	CARBON	2.2K	5%	1/4W	
R215	1-249-414-11	CARBON	560	5%	1/4W	
R216	1-249-417-11	CARBON	1K	5%	1/4W	
R217	1-249-421-11	CARBON	2.2K	5%	1/4W	
R218	1-249-414-11	CARBON	560	5%	1/4W	
R219	1-249-417-11	CARBON	1K	5%	1/4W	
R220	1-249-429-11	CARBON	10K	5%	1/4W	
R221	1-249-429-11	CARBON	10K	5%	1/4W	
R222	1-249-417-11	CARBON	1K	5%	1/4W	
R223	1-215-428-00	METAL	2K	1%	1/6W	
R224	1-215-428-00	METAL	2K	1%	1/6W	
R225	1-215-419-00	METAL	820	1%	1/6W	
R226	1-247-827-31	CARBON	680	5%	1/4W	
R227	1-215-414-00	METAL	510	1%	1/6W	
R228	1-215-419-00	METAL	820	1%	1/6W	
R229	1-249-409-11	CARBON	220	5%	1/4W	
R230	1-249-413-11	CARBON	470	5%	1/4W	

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Ref.No	Part No.	Description				Remark
R231	1-249-421-11	CARBON	2.2K	5%	1/4W	
R232	1-249-413-11	CARBON	470	5%	1/4W	
R233	1-249-425-11	CARBON	4.7K	5%	1/4W	
R234	1-249-421-11	CARBON	2.2K	5%	1/4W	
R235	1-249-417-11	CARBON	1K	5%	1/4W	
R236	1-249-422-11	CARBON	2.7K	5%	1/4W	
R237	1-249-407-11	CARBON	150	5%	1/4W	
R239	1-247-836-00	CARBON	1.6K	5%	1/4W	
R240	1-249-417-11	CARBON	1K	5%	1/4W	
R241	1-249-417-11	CARBON	1K	5%	1/4W	
R242	1-249-421-11	CARBON	2.2K	5%	1/4W	
R243	1-249-417-11	CARBON	1K	5%	1/4W	
R244	1-249-417-11	CARBON	1K	5%	1/4W	
R245	1-249-419-11	CARBON	1.5K	5%	1/4W	
R246	1-215-419-00	METAL	820	1%	1/6W	
R247	1-249-419-11	CARBON	1.5K	5%	1/4W	
R248	1-249-429-11	CARBON	10K	5%	1/4W	
R249	1-249-429-11	CARBON	10K	5%	1/4W	
R250	1-249-421-11	CARBON	2.2K	5%	1/4W	
R251	1-249-417-11	CARBON	1K	5%	1/4W	
R252	1-249-417-11	CARBON	1K	5%	1/4W	
R253	1-249-429-11	CARBON	10K	5%	1/4W	
R254	1-249-419-11	CARBON	1.5K	5%	1/4W	
R255	1-249-429-11	CARBON	10K	5%	1/4W	
R256	1-249-413-11	CARBON	470	5%	1/4W	
R257	1-249-419-11	CARBON	1.5K	5%	1/4W	
R258	1-215-419-00	METAL	820	1%	1/6W	
R259	1-249-429-11	CARBON	10K	5%	1/4W	
R260	1-215-428-00	METAL	2K	1%	1/6W	
R261	1-215-428-00	METAL	2K	1%	1/6W	
R262	1-215-415-00	METAL	560	1%	1/6W	
R263	1-215-417-00	METAL	680	1%	1/6W	
R264	1-215-428-00	METAL	2K	1%	1/6W	
R265	1-215-405-00	METAL	220	1%	1/6W	
R266	1-215-405-00	METAL	220	1%	1/6W	
R267	1-249-409-11	CARBON	220	5%	1/4W	
R268	1-215-415-00	METAL	560	1%	1/6W	
R269	1-249-417-11	CARBON	1K	5%	1/4W	
R270	1-249-413-11	CARBON	470	5%	1/4W	
R271	1-247-826-00	CARBON	620	5%	1/4W	
R272	1-249-417-11	CARBON	1K	5%	1/4W	
R273	1-249-417-11	CARBON	1K	5%	1/4W	
R274	1-249-417-11	CARBON	1K	5%	1/4W	
R275	1-249-429-11	CARBON	10K	5%	1/4W	
R276	1-249-417-11	CARBON	1K	5%	1/4W	
R277	1-249-421-11	CARBON	2.2K	5%	1/4W	
R278	1-215-420-00	CARBON	910	5%	1/4W	
R279	1-249-417-11	CARBON	1K	5%	1/4W	
R280	1-249-417-11	CARBON	1K	5%	1/4W	
R281	1-249-405-11	CARBON	100	5%	1/4W	
R282	1-249-405-11	CARBON	100	5%	1/4W	
R283	1-249-390-11	CARBON	5.6	5%	1/4W	
R284	1-249-390-11	CARBON	5.6	5%	1/4W	
R285	1-215-394-00	CARBON	75	5%	1/4W	
R286	1-215-394-00	CARBON	75	5%	1/4W	
R288	1-247-895-00	CARBON	470K	5%	1/4W	
R289	1-249-421-11	CARBON	2.2K	5%	1/4W	
R290	1-249-417-11	CARBON	1K	5%	1/4W	
R291	1-215-420-00	CARBON	910	5%	1/4W	
R292	1-249-413-11	CARBON	470	5%	1/4W	
R293	1-215-421-00	METAL	1K	1%	1/6W	
R294	1-215-421-00	METAL	1K	1%	1/6W	
R295	1-249-417-11	CARBON	1K	5%	1/4W	
R296	1-249-417-11	CARBON	1K	5%	1/4W	
R297	1-247-838-00	CARBON	2K	5%	1/4W	
R298	1-249-427-11	CARBON	6.8K	5%	1/4W	
R300	1-249-421-11	CARBON	2.2K	5%	1/4W	
R301	1-249-405-11	CARBON	100	5%	1/4W	
R302	1-249-409-11	CARBON	220	5%	1/4W	
R303	1-249-429-11	CARBON	10K	5%	1/4W	
R304	1-249-429-11	CARBON	10K	5%	1/4W	
R305	1-249-429-11	CARBON	10K	5%	1/4W	
R306	1-249-429-11	CARBON	10K	5%	1/4W	
R307	1-249-429-11	CARBON	10K	5%	1/4W	
R308	1-249-424-11	CARBON	3.9K	5%	1/4W	
R309	1-249-429-11	CARBON	10K	5%	1/4W	
R310	1-249-430-11	CARBON	12K	5%	1/4W	
R311	1-249-441-11	CARBON	100K	5%	1/4W	
R312	1-249-441-11	CARBON	100K	5%	1/4W	
R314	1-249-417-11	CARBON	1K	5%	1/4W	
R315	1-249-417-11	CARBON	1K	5%	1/4W	
R316	1-249-430-11	CARBON	12K	5%	1/4W	
R317	1-249-417-11	CARBON	1K	5%	1/4W	
R318	1-249-417-11	CARBON	1K	5%	1/4W	
R319	1-249-417-11	CARBON	1K	5%	1/4W	
R320	1-249-417-11	CARBON	1K	5%	1/4W	
R321	1-249-429-11	CARBON	10K	5%	1/4W	
R322	1-249-397-11	CARBON	22	5%	1/4W	
R323	1-249-397-11	CARBON	22	5%	1/4W	
R324	1-249-397-11	CARBON	22	5%	1/4W	
R325	1-249-397-11	CARBON	22	5%	1/4W	
R326	1-249-397-11	CARBON	22	5%	1/4W	
R327	1-249-397-11	CARBON	22	5%	1/4W	
R328	1-249-397-11	CARBON	22	5%	1/4W	
R329	1-249-397-11	CARBON	22	5%	1/4W	
R330	1-249-397-11	CARBON	22	5%	1/4W	
R331	1-249-397-11	CARBON	22	5%	1/4W	
R332	1-249-397-11	CARBON	22	5%	1/4W	
R333	1-249-397-11	CARBON	22	5%	1/4W	
R334	1-249-417-11	CARBON	1K	5%	1/4W	
R335	1-249-417-11	CARBON	1K	5%	1/4W	
R336	1-249-417-11	CARBON	1K	5%	1/4W	
R337	1-249-417-11	CARBON	1K	5%	1/4W	
R338	1-249-417-11	CARBON	1K	5%	1/4W	
R339	1-249-437-11	CARBON	47K	5%	1/4W	
R340	1-249-413-11	CARBON	470	5%	1/4W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R341	1-249-417-11	CARBON 1K 5% 1/4W	
R343	1-249-417-11	CARBON 1K 5% 1/4W	
R344	1-249-417-11	CARBON 1K 5% 1/4W	
R345	1-249-417-11	CARBON 1K 5% 1/4W	
R346	1-249-417-11	CARBON 1K 5% 1/4W	
R347	1-249-423-11	CARBON 3.3K 5% 1/4W	
R348	1-249-438-11	CARBON 56K 5% 1/4W	
R349	1-249-429-11	CARBON 10K 5% 1/4W	
R350	1-249-429-11	CARBON 10K 5% 1/4W	
R351	1-249-441-11	CARBON 100K 5% 1/4W	
R352	1-249-441-11	CARBON 100K 5% 1/4W	
R353	1-249-441-11	CARBON 100K 5% 1/4W	
R354	1-249-417-11	CARBON 1K 5% 1/4W	
R355	1-249-417-11	CARBON 1K 5% 1/4W	
R356	1-249-429-11	CARBON 10K 5% 1/4W	
R357	1-249-411-11	CARBON 330 5% 1/4W	
R358	1-249-411-11	CARBON 330 5% 1/4W	
R359	1-249-416-11	CARBON 820 5% 1/4W	
R360	1-249-405-11	CARBON 100 5% 1/4W	
R361	1-249-424-11	CARBON 3.9K 5% 1/4W	
R362	1-249-425-11	CARBON 4.7K 5% 1/4W	
R363	1-249-420-11	CARBON 1.8K 5% 1/4W	
R364	1-249-420-11	CARBON 1.8K 5% 1/4W	
R365	1-249-429-11	CARBON 10K 5% 1/4W	
R366	1-249-429-11	CARBON 10K 5% 1/4W	
R367	1-249-429-11	CARBON 10K 5% 1/4W	
R368	1-249-429-11	CARBON 10K 5% 1/4W	
R369	1-249-429-11	CARBON 10K 5% 1/4W	
R370	1-249-429-11	CARBON 10K 5% 1/4W	
R371	1-249-429-11	CARBON 10K 5% 1/4W	
R372	1-249-429-11	CARBON 10K 5% 1/4W	
R373	1-249-429-11	CARBON 10K 5% 1/4W	
R374	1-249-429-11	CARBON 10K 5% 1/4W	
R375	1-249-429-11	CARBON 10K 5% 1/4W	
R376	1-249-425-11	CARBON 4.7K 5% 1/4W	
R380	1-215-493-00	CARBON 1M 5% 1/4W	
R381	1-249-417-11	CARBON 1K 5% 1/4W	
R382	1-249-417-11	CARBON 1K 5% 1/4W	
R383	1-249-417-11	CARBON 1K 5% 1/4W	
R384	1-249-417-11	CARBON 1K 5% 1/4W	
R385	1-249-417-11	CARBON 1K 5% 1/4W	
R386	1-249-417-11	CARBON 1K 5% 1/4W	
R387	1-249-417-11	CARBON 1K 5% 1/4W	
R388	1-249-417-11	CARBON 1K 5% 1/4W	
R389	1-249-417-11	CARBON 1K 5% 1/4W	
R390	1-249-417-11	CARBON 1K 5% 1/4W	
R391	1-249-417-11	CARBON 1K 5% 1/4W	
R392	1-249-417-11	CARBON 1K 5% 1/4W	
R393	1-249-417-11	CARBON 1K 5% 1/4W	
R394	1-249-417-11	CARBON 1K 5% 1/4W	
R396	1-249-417-11	CARBON 1K 5% 1/4W	
R397	1-249-417-11	CARBON 1K 5% 1/4W	
R398	1-249-439-11	CARBON 68K 5% 1/4W	

Ref.No	Part No.	Description	Remark
R399	1-249-437-11	CARBON 47K 5% 1/4W	
R401	1-249-441-11	CARBON 100K 5% 1/4W	
R402	1-249-441-11	CARBON 100K 5% 1/4W	
R403	1-249-441-11	CARBON 100K 5% 1/4W	
R404	1-249-441-11	CARBON 100K 5% 1/4W	
R405	1-249-429-11	CARBON 10K 5% 1/4W	
R406	1-249-417-11	CARBON 1K 5% 1/4W	
R407	1-249-433-11	CARBON 22K 5% 1/4W	
R409	1-249-435-11	CARBON 33K 5% 1/4W	
R410	1-249-429-11	CARBON 10K 5% 1/4W	
R411	1-249-417-11	CARBON 1K 5% 1/4W	
R412	1-249-433-11	CARBON 22K 5% 1/4W	
R414	1-215-493-00	CARBON 1M 5% 1/4W	
R415	1-249-441-11	CARBON 100K 5% 1/4W	
R416	1-249-413-11	CARBON 470 5% 1/4W	
R417	1-249-413-11	CARBON 470 5% 1/4W	
R418	1-215-493-00	CARBON 1M 5% 1/4W	
R419	1-249-441-11	CARBON 100K 5% 1/4W	
R420	1-249-413-11	CARBON 470 5% 1/4W	
R421	1-249-413-11	CARBON 470 5% 1/4W	
R422	1-215-493-00	CARBON 1M 5% 1/4W	
R423	1-249-441-11	CARBON 100K 5% 1/4W	
R424	1-249-435-11	CARBON 33K 5% 1/4W	
R425	1-249-439-11	CARBON 68K 5% 1/4W	
R426	1-249-439-11	CARBON 68K 5% 1/4W	
R501	1-249-425-11	CARBON 4.7K 5% 1/4W	
R502	1-249-425-11	CARBON 4.7K 5% 1/4W	
R503	1-249-429-11	CARBON 10K 5% 1/4W	
R504	1-247-887-00	CARBON 220K 5% 1/4W	
R505	1-249-409-11	CARBON 220 5% 1/4W	
R506	1-249-415-11	CARBON 680 5% 1/4W	
R507	1-249-409-11	CARBON 220 5% 1/4W	
R508	1-249-409-11	CARBON 220 5% 1/4W	
R509	1-249-409-11	CARBON 220 5% 1/4W	
R701	1-249-417-11	CARBON 1K 5% 1/4W	
R702	1-247-883-00	CARBON 150K 5% 1/4W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV101	1-228-995-00	RES, ADJ, CARBON 22K	
RV102	1-228-997-00	RES, ADJ, CARBON 100K	
RV103	1-228-994-00	RES, ADJ, CARBON 10K	
RV104	1-228-994-00	RES, ADJ, CARBON 10K	
RV105	1-228-989-00	RES, ADJ, CARBON 470	
RV106	1-228-989-00	RES, ADJ, CARBON 470	
RV108	1-228-994-00	RES, ADJ, CARBON 10K	
RV109	1-228-989-00	RES, ADJ, CARBON 470	
RV110	1-228-996-00	RES, ADJ, CARBON 47K	
RV501	1-228-989-00	RES, ADJ, CARBON 470	
RV502	1-228-989-00	RES, ADJ, CARBON 470	
RV503	1-228-989-00	RES, ADJ, CARBON 470	

When indicating parts by reference number, please include the board name.

MM-005 | FR-001 | FR-004 | FR-002

Ref.No	Part No.	Description	Remark
		RELAY	
RY301	1-515-585-11	RELAY	
		CRYSTAL	
X101	1-527-723-00	VIBRATOR, CRYSTAL (14.1875MHz)	
X102	1-567-344-21	VIBRATOR, CRYSTAL (VCO) (17.73MHz)	
X302	1-527-822-00	OSCILLATOR, CERAMIC (4MHz)	

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*A-7070-602-A FR-001 BOARD, COMPLETE

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	*2-118-240-02	BRACKET, PC BOARD	
	*3-662-262-00	HOLDER (D), LED	
		CAPACITOR	
C001	1-101-004-00	CERAMIC 0.01MF	50V
C002	1-101-004-00	CERAMIC 0.01MF	50V
C003	1-101-004-00	CERAMIC 0.01MF	50V
C004	1-101-004-00	CERAMIC 0.01MF	50V
C005	1-102-973-00	CERAMIC 100PF 5%	50V
C006	1-101-004-00	CERAMIC 0.01MF	50V
C007	1-101-004-00	CERAMIC 0.01MF	50V
C008	1-124-963-11	ELECT 33MF 20%	16V
		CONNECTOR	
CN001	*1-940-183-00	PIN, CONNECTOR 4P	
CN002	*1-940-182-00	PIN, CONNECTOR 8P	
CN003	*1-564-004-00	PIN, CONNECTOR 5P	
		DIODE	
D001	8-719-911-19	DIODE 1SS119	
D002	8-719-911-19	DIODE 1SS119	
D003	8-719-911-19	DIODE 1SS119	
D004	8-719-911-19	DIODE 1SS119	
D005	8-719-911-19	DIODE 1SS119	
D006	8-719-911-19	DIODE 1SS119	
D007	8-719-911-19	DIODE 1SS119	
D008	8-719-911-19	DIODE 1SS119	
D009	8-719-911-19	DIODE 1SS119	
D010	8-719-911-19	DIODE 1SS119	
D011	8-719-911-19	DIODE 1SS119	
D012	8-719-911-19	DIODE 1SS119	
D013	8-719-109-72	DIODE RD3.9ESB2	
D018	8-719-812-32	DIODE TLY123	
D019	8-719-812-32	DIODE TLY123	
		IC	
IC001	8-759-900-14	IC SN74LS14N	
IC002	8-759-901-74	IC SN74LS174N	

Ref.No	Part No.	Description	Remark
		TRANSISTOR	
Q001	8-729-600-27	TRANSISTOR 2SC634SP	
Q002	8-729-600-27	TRANSISTOR 2SC634SP	
		RESISTOR	
R001	1-249-429-11	CARBON 10K 5% 1/4W	
R002	1-249-429-11	CARBON 10K 5% 1/4W	
R003	1-249-429-11	CARBON 10K 5% 1/4W	
R004	1-249-410-11	CARBON 270 5% 1/4W	
R005	1-249-410-11	CARBON 270 5% 1/4W	
R006	1-249-410-11	CARBON 270 5% 1/4W	
R007	1-249-410-11	CARBON 270 5% 1/4W	
R008	1-249-410-11	CARBON 270 5% 1/4W	
R009	1-249-437-11	CARBON 47K 5% 1/4W	
R010	1-249-437-11	CARBON 47K 5% 1/4W	
R011	1-249-437-11	CARBON 47K 5% 1/4W	
R012	1-249-437-11	CARBON 47K 5% 1/4W	
R013	1-215-438-00	CARBON 5.1K 5% 1/4W	
R014	1-215-438-00	CARBON 5.1K 5% 1/4W	
R015	1-249-429-11	CARBON 10K 5% 1/4W	
		SWITCH	
S001	1-570-796-11	SWITCH, ROTARY (COLOR SELETCT)	
S002	1-570-797-11	SWITCH, PUSH (1 KEY) (REVERSE)	
S003	1-570-798-11	SWITCH, PUSH (3 KEY) (OUTPUT SELECT)	
S004	1-570-797-11	SWITCH, PUSH (1 KEY) (INPUT SELECT)	

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*A-7070-603-A FR-004 BOARD, COMPLETE

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		DIODE	
D014	8-719-812-32	DIODE TLY123	
D015	8-719-812-31	DIODE TLR123	
D016	8-719-812-31	DIODE TLR123	
D017	8-719-812-31	DIODE TLR123	

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*A-7070-604-A FR-002 BOARD, COMPLETE

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		CONNECTOR	
CN010	1-940-185-00	CONNECTOR 10P	
CN011	1-562-407-11	SOCKET 13P (MOUNT TYPE)	
		DIODE	
D051	8-719-110-49	DIODE RD18ES-B2	
D052	8-719-110-49	DIODE RD18ES-B2	
D053	8-719-110-49	DIODE RD18ES-B2	
D054	8-719-110-49	DIODE RD18ES-B2	
D055	8-719-110-49	DIODE RD18ES-B2	
D056	8-719-110-49	DIODE RD18ES-B2	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
D057	8-719-110-49	DIODE RD18ES-B2	
D058	8-719-110-49	DIODE RD18ES-B2	
D059	8-719-110-49	DIODE RD18ES-B2	

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Ref.No	Part No.	Description	Remark
	*A-7070-605-A	FR-003 BOARD, COMPLETE ***********************	
		CONNECTOR	
CN020	————————	HARNESS	
CN021	1-564-372-00	PIN, CONNECTOR 9P	
		DIODE	
D071	8-719-110-49	DIODE RD18ES-B2	
D072	8-719-110-49	DIODE RD18ES-B2	
D073	8-719-110-49	DIODE RD18ES-B2	
D074	8-719-110-49	DIODE RD18ES-B2	
D075	8-719-110-49	DIODE RD18ES-B2	
D076	8-719-110-49	DIODE RD18ES-B2	
D077	8-719-110-49	DIODE RD18ES-B2	
D078	8-719-110-49	DIODE RD18ES-B2	
D079	8-719-110-49	DIODE RD18ES-B2	

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Ref.No	Part No.	Description	Remark
	*A-7070-606-A	AC-27 BOARD, COMPLETE **********************	
	*1-533-189-11	HOLDER, FUSE	
	2-430-344-01	COVER (CC-1017), INSULATING	
		CAPACITOR	
C502 ⚠	1-136-472-11	FILM 0.1MF 20%	250V
C503 ⚠	1-161-742-00	CERAMIC 0.0022MF 20%	400V
C504 ⚠	1-161-742-00	CERAMIC 0.0022MF 20%	400V
C505 ⚠	1-161-742-00	CERAMIC 0.0022MF 20%	400V
C506 ⚠	1-161-742-00	CERAMIC 0.0022MF 20%	400V
		CONNECTOR	
CN002	*1-564-687-11	PIN, CONNECTOR 3P	
		FUSE	
F001 ⚠	1-532-259-00	FUSE, TIME-LAG (T1.6A 250V)	
		COIL	
L501 ⚠	1-421-765-11	FILTER, LINE	

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Ref.No	Part No.	Description	Remark
	*A-7070-607-A	AC-28 BOARD, COMPLETE **********************	
		SWITCH	
S001 ⚠	1-553-318-00	SWITCH, PUSH (AC POWER)(1 KEY)	

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Ref.No	Part No.	Description	Remark
	*A-7070-608-A	SC-701 BOARD, COMPLETE ***********************	
		CAPACITOR	
C701	1-163-113-00	CERAMIC CHIP 68PF 5%	50V
C702	1-163-113-00	CERAMIC CHIP 68PF 5%	50V
C703	1-163-081-00	CERAMIC CHIP 0.22MF	25V
C704	1-163-081-00	CERAMIC CHIP 0.22MF	25V
C705	1-135-101-21	TANTAL. CHIP 22MF 10%	6.3V
C706	1-135-099-00	TANTAL. CHIP 2.2MF 10%	6.3V
C707	1-163-035-00	CERAMIC CHIP 0.047MF 10%	25V
		CONNECTOR	
CN701	*1-564-016-00	PIN, CONNECTOR 6P	
		DIODE	
D701	8-719-100-05	DIODE 1S2837	
D702	8-719-914-44	DIODE DAN202K	
D703	8-719-914-44	DIODE DAN202K	
		IC	
IC701	8-759-140-36	IC UPD1510ACU-SAX533	
		TRANSISTOR	
Q701	8-729-903-53	TRANSISTOR 2SB1132-T100-Q	
Q702	8-729-903-53	TRANSISTOR 2SB1132-T100-Q	
Q703	8-729-903-53	TRANSISTOR 2SB1132-T100-Q	
Q704	8-729-903-53	TRANSISTOR 2SB1132-T100-Q	
		RESISTOR	
R701	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R702	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R703	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R704	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R705	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R706	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R707	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R708	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R709	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R710	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R711	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R712	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R713	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R714	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R715	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R716	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R717	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R718	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R719	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R720	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R721	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R722	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SC-701 SD-801 SS-601

Ref.No	Part No.	Description				Remark
R723	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R724	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R725	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R726	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R727	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
		CRYSTAL				
X701	1-527-822-00	OSCILLATOR, CERAMIC (4MHz)				

****

*A-7070-609-A SD-801 BOARD, COMPLETE
****

		CAPACITOR				
C801	1-135-093-21	TANTAL. CHIP 10MF		20%	16V	
		IC				
IC801	8-759-200-79	IC TC4049BF				
		TRANSISTOR				
Q801	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q802	8-729-100-67	TRANSISTOR 2SC1623-L7				
		THERMISTOR				
TH801	1-807-752-11	THERMISTOR				
TH802	1-807-752-11	THERMISTOR				

****

*A-7090-774-A SS-601 BOARD, COMPLETE
****

		CAPACITOR				
C601	1-135-093-21	TANTAL. CHIP 10MF		20%	16V	
C602	1-135-101-21	TANTAL. CHIP 22MF		20%	6.3V	
C603	1-163-117-00	CERAMIC CHIP 100PF		5%	50V	
C604	1-163-117-00	CERAMIC CHIP 100PF		5%	50V	
C605	1-163-117-00	CERAMIC CHIP 100PF		5%	50V	
C606	1-163-117-00	CERAMIC CHIP 100PF		5%	50V	
C607	1-163-181-00	CERAMIC CHIP 100PF		5%	50V	
C608	1-163-035-00	CERAMIC CHIP 0.047MF		10%	25V	
C609	1-163-137-00	CERAMIC CHIP 680PF		10%	50V	
C610	1-135-083-00	TANTAL. CHIP 0.47MF		20%	25V	
C611	1-163-035-00	CERAMIC CHIP 0.047MF		10%	25V	
C612	1-163-038-00	CERAMIC CHIP 0.1MF			25V	
C613	1-135-092-21	TANTAL. CHIP 3.3MF		20%	16V	
C614	1-135-070-00	TANTAL. CHIP 0.1MF		20%	35V	
C615	1-135-099-00	TANTAL. CHIP 2.2MF		20%	6.3V	
C616	1-135-083-00	TANTAL. CHIP 0.47MF		20%	25V	
C617	1-135-093-21	TANTAL. CHIP 10MF		20%	16V	
C618	1-163-197-00	CERAMIC CHIP 470PF		5%	50V	

Ref.No	Part No.	Description				Remark
		DIODE				
D601	8-719-105-58	DIODE RD3.9M-B2				
D602	8-719-105-82	DIODE RD5.1M-B2				
D603	8-719-403-94	DIODE MA160				
D604	8-719-100-05	DIODE 1S2837				
		IC				
IC601	8-759-106-23	IC UPD4066BG				
IC602	8-759-908-17	IC TL082CPS				
IC603	8-759-908-92	IC TL084CNS				
IC604	8-759-700-90	IC NJM2901M				
IC605	8-759-933-82	IC SN7416NS				
		TRANSISTOR				
Q601	8-729-100-67	TRANSISTOR 2SC1623				
Q602	8-729-106-25	TRANSISTOR 3SK132-32				
Q603	8-729-101-07	TRANSISTOR 2SB798				
Q604	8-729-216-21	TRANSISTOR 2SA1162G				
Q605	8-729-100-67	TRANSISTOR 2SC1623				
Q606	8-729-100-67	TRANSISTOR 2SC1623				
Q607	8-729-216-21	TRANSISTOR 2SA1162G				
Q608	8-729-100-67	TRANSISTOR 2SC1623				
Q609	8-729-216-21	TRANSISTOR 2SA1162G				
Q610	8-729-100-67	TRANSISTOR 2SC1623				
Q611	8-729-100-67	TRANSISTOR 2SC1623				
Q612	8-729-216-21	TRANSISTOR 2SA1162G				
Q613	8-729-216-21	TRANSISTOR 2SA1162G				
		RESISTOR				
R601	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
R602	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R603	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R604	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R605	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R606	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
R607	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R608	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R609	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R610	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R611	1-216-198-00	METAL GLAZE	1K	5%	1/8W	
R612	1-216-222-00	METAL GLAZE	10K	5%	1/8W	
R613	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R614	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R615	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R616	1-216-222-00	METAL GLAZE	10K	5%	1/8W	
R617	1-216-198-00	METAL GLAZE	1K	5%	1/8W	
R618	1-216-198-00	METAL GLAZE	1K	5%	1/8W	
R619	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R620	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R621	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R622	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R623	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R624	1-216-117-00	METAL GLAZE	680K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R625	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R626	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R627	1-216-270-00	METAL GLAZE 1M 5% 1/8W	
R628	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R629	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R630	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R631	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R632	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R633	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R634	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R635	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R636	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R637	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R638	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R639	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R640	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R641	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R642	1-216-246-00	METAL GLAZE 100K 5% 1/8W	
R643	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R644	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R645	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R646	1-216-240-00	METAL GLAZE 56K 5% 1/8W	
R647	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R648	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R649	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R650	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R651	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R652	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R653	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R654	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R655	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R656	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R657	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R658	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R659	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R660	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R661	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R664	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R665	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R666	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R667	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R668	1-216-296-00	METAL GLAZE 0 5% 1/8W	

VARIABLE RESISTOR

RV601	1-237-012-21	RES, ADJ, METAL GLAZE 10K
RV602	1-237-012-21	RES, ADJ, METAL GLAZE 10K

SWITCH

Ref.No	Part No.	Description	Remark
S602	1-554-371-31	SWITCH, TACT	
S603	1-554-371-31	SWITCH, TACT	
S604	1-554-371-31	SWITCH, TACT	
S605	1-554-371-31	SWITCH, TACT	
S606	1-554-371-31	SWITCH, TACT	
S607	1-554-371-31	SWITCH, TACT	
S608	1-554-371-31	SWITCH, TACT	
S609	1-554-371-31	SWITCH, TACT	
S610	1-554-371-31	SWITCH, TACT	
S611	1-570-386-11	SWITCH, SLIDE	

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1-621-046-11 SL-901 BOARD, FLEXIBLE
****

DIODE

D901	8-719-941-68	DIODE BR4543K-86
D902	8-719-941-68	DIODE BR4543K-86

IC

IC901	8-759-206-96	IC TCD104D

RESISTOR

R901	1-216-172-00	RES, CHIP 82 5% 1/8W
R902	1-216-172-00	RES, CHIP 82 5% 1/8W

****

MISCELLANEOUS
****

	⚠.1-532-259-00	FUSE, TIME-LAG
	⚠.1-555-795-00	CORD, POWER, EULO PLUG (AEP MODEL)
	1-558-935-21	CORD (WITH PLUG) 13P
	1-621-077-11	PC BOARD, CT FLEXIBLE
IC511	8-759-604-29	IC M5F7805
IC512	8-759-604-29	IC M5F7805
IC513	8-759-604-47	IC M5F7905
M901	1-541-370-11	MOTOR (PFX-13EC04A)
S612	1-553-198-00	SWITCH, LEAF (ZOOM SIZE)
S801	1-570-926-11	SWITCH, MICRO (PICK UP END SW)
T001	⚠.1-448-999-11	TRANSFORMER, POWER
	⚠.1-551-884-00	CORD, POWER (UK MODEL)
	⚠.1-551-732-00	CORD, POWER (AUSTRALIAN MODEL)

****

ACCESSORIES AND PACKING MATERIALS
****

Part No.	Description	Remark
*2-120-645-01	CUSHION (UPPER)	
*2-120-646-01	CUSHION (LOWER)	
*2-120-654-01	INDIVIDUAL CARTON	
*2-372-545-01	SHEET, PROTECTION	
3-570-631-81	BAG, PROTECTION	
3-765-769-41	MANUAL, INSTRUCTION	
3-765-769-51	MANUAL, INSTRUCTION (AEP MODEL)	
3-765-769-61	MANUAL, INSTRUCTION (AEP MODEL)	

****

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 7
ELECTRICAL ADJUSTMENTS

During the adjustment, see the parts location diagram relevant to the adjustment on page 84.

[Equipment]

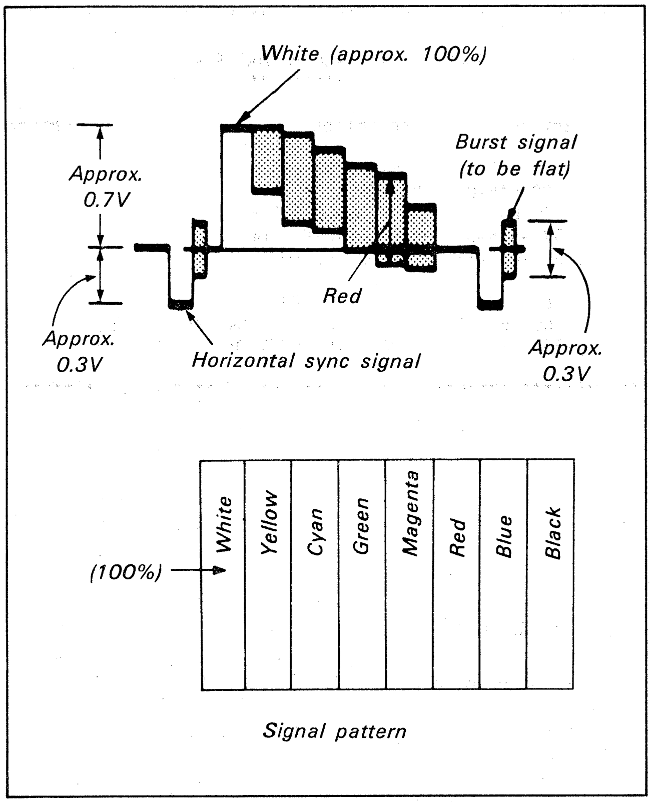
1) Colour monitor TV
2) Oscilloscope; 2 phenomena, band 15 MHz or wider, with delay mode.
3) Frequency counter (more than 6 digits)
4) PAL pattern generator
5) Vectorscope
6) Digital voltmeter
7) Audio generator
8) Attenuator
9) Audio level meter

[Set-up for adjustment]

In this adjustment, the PAL pattern generator is connected with the VIDEO INPUT terminal 1 to use the pattern as the video input signal.
Connect the oscilloscope to VIDEO INPUT terminal 1 (CNJ401) on the MM-005 board and check the video input signal for the following points:

1. Amplitude of the horizontal SYNC signal must be approx. 0.3 Vp-p.
2. Amplitude of the video signal must be approx. 0.7 Vp-p.
3. Amplitude of the burst signal must be approx. 0.3 Vp-p.

The video (colour bar) signal for adjustment is shown in Fig. 7-1.


White (approx. 100%)
Burst signal (to be flat)
Approx. 0.7V
Red
Approx. 0.3V
Horizontal sync signal
Approx. 0.3V
(100%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black

Signal pattern

Fig. 7-1. Colour signal from the pattern generator

[Switch setting]

Set the switches on the front panel to the following positions unless otherwise specified:

1.	INPUT SELECT switch	INPUT 1
2.	OUTPUT SELECT switch	SCANNER
3.	COLOUR SELECT switch	Yellow
4.	REVERSE switch	OFF

7-1. POWER SUPPLY ADJUSTMENT

7-1-1. Digital System Power Supply Adjustment (MM-005 Board)

Signal	Arbitrary
Measuring Instrument	Digital voltmeter
+5V adjustment	
Measurement Point	TP502 (Pin ③ of CN502)
Adjusting Element	RV503
Specified Value	5.00±0.05 Vdc
+12V check	
Measurement Point	Pin ③ of IC501
Specified Value	12.0±0.7 Vdc

Adjusting method:

1) Adjust each power supply voltage to the specified value with the appropriate RV.

7-1-2. Video/Audio System Power Supply Adjustment and Check (MM-005 Board)

Signal	Arbitrary
Measuring Instrument	Digital voltmeter
+5V adjustment	
Measurement Point	TP503 (Pin ③ of CN503)
Adjusting Element	RV502
Specified Value	5.00±0.05 Vdc
−5V adjustment	
Measurement Point	TP501 (Pin ③ of CN504)
Adjusting Element	RV501
Specified Value	−5.00±0.05 Vdc

Adjusting method:

1) Adjust each power supply voltage to the specifed value with the appropriate RV.

7-2. VIDEO SYSTEM ADJUSTMENT

7-2-1. APC Free-running Frequency Adjustment (MM-005 Board)

Signal	No signal
Measurement Point	TP206 (Pin ⑲ of IC111)
Measuring Instrument	Frequency counter
Adjusting Element	CV102
Specified Value	4433619±10 Hz

Note: Use a probe of the low capacity (not more than 10 pF) and high impedance (not less than 1 MΩ).

Adjusting method:

1) Adjust with CV102 so that it becomes 4433619±10 Hz.

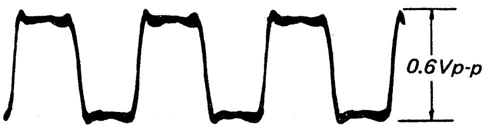


Fig. 7-2.

7-2-2. APC Phase Adjustment (MM-005 Board)

Signal	Colour bar
Measurement Point	CH1: TP207 (Pin ⑮ of IC112) EXT TRIGGER: TP222 (Pin ⑩ of IC108)
Measuring Instrument	Oscilloscope
Adjusting Element	RV110
Specified Value	See Fig. 7-3.

Adjusting method:

1) Set OUTPUT SELECT switch on the front panel to the VIDEO position.
2) Set the burst level of section A to 0±10 mVp-p using RV110. Confirm that the burst level of section B is at least 400 mVp-p at this time.

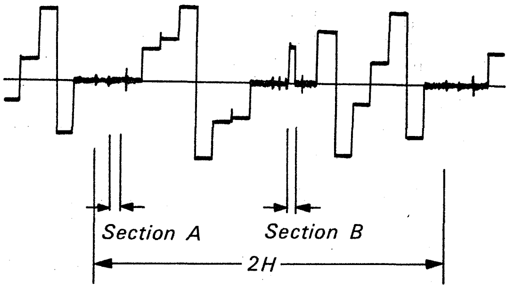


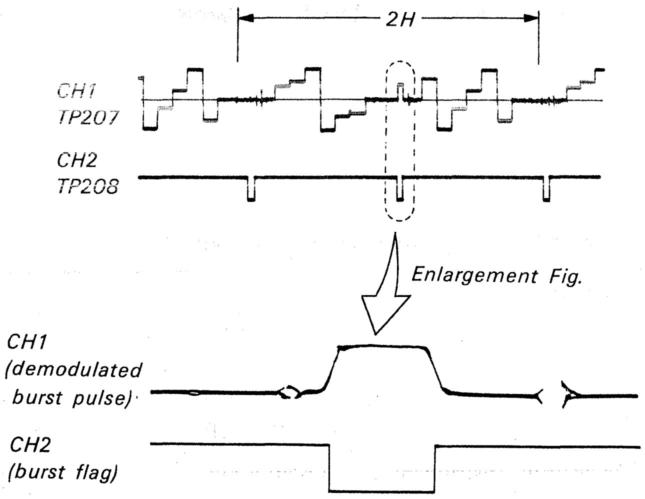
Fig. 7-3.

7-2-3. H Reset Pulse Phase Adjustment (MM-005 Board)

Signal	Colour bar
Measurement Point	CH1: TP207 (Pin ⑮ of IC112) CH2: TP208 (Pin ⑩ of IC108)
Measuring Instrument	Oscilloscope
Adjusting Element	RV103
Specified Value	Adjust so that the centers of the demodulation burst pulse (TP207) and burst flag (TP208) become coincided.

Adjusting method:

1) Set OUTPUT SELECT switch to the VIDEO position.
2) Adjust RV103 so that the centers of the demodulation burst pulse (TP207) and burst flag (TP208) become coincided.



Make the centers of the CH1 waveform and CH2 waveform coincide.

Fig. 7-4.

7-2-4. AFC Free-running Frequency Adjustment (MM-005 Board)

Signal	No signal
Measurement Point	TP220 (Pin ⑮ of IC110)
Measuring Instrument	Frequency counter
Adjusting Element	RV104
Specified Value	15625±10 Hz

Connection:

1) Connect TP217 (Pin ⑩ of IC110) and GND with a 10 μF capacitor.

Adjusting method:

1) Adjust with RV104 so that it becomes 15625±10 Hz.

7-2-5. PLL OFF SET Adjustment (MM-005 Board)

Signal	No signal
Measurement Point	TP221
Measuring Instrument	Digital voltmeter
Adjusting Element	CV101
Specified Value	2.5±0.3 Vdc

Adjusting method:

1) Set OUTPUT SELECT switch to the SUPERIMPOSE position.
2) Adjust with CV101 so that it becomes 2.5±0.3 Vdc.

7-2-6. VIDEO OUT Level Adjustment (MM-005 Board)

Signal	Colour bar
Measurement Point	TP216 (VIDEO OUT terminal: CNJ404)*1
Measuring Instrument	Oscilloscope
Adjusting Element	RV109
Specified Value	1.00±0.05 Vp-p

*1 Be sure that the VIDEO OUT terminal (CNJ404) is terminated with a 75Ω load.

Adjusting method:

1) Set OUTPUT SELECT switch to the VIDEO position.
2) Adjust with RV109 so that it becomes 1.00±0.05 Vp-p.

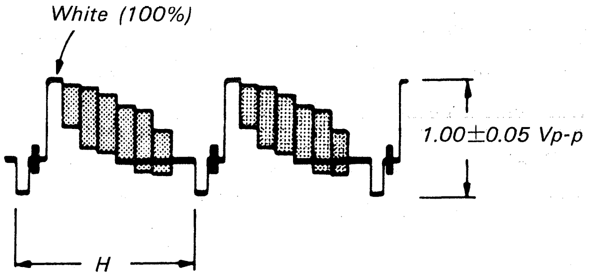


Fig. 7-5.

7-2-7. Chroma Level Adjustment (1) (MM-005 Board)

1. Using the vectorscope

Signal	Colour bar
Measurement Point	TP233 (VIDEO OUT terminal: CNJ402)*1
Measuring Instrument	Vectorscope
Adjusting Element	RV106 (EXT.C) CV103 (C.PHASE)
Specified Value	Each colour luminance point for R, YL, G, CY, B, and MG must be positioned in the specified box ⊞.

*1 Be sure that the VIDEO OUT terminal (CNJ402) is terminated with a 75Ω load.

Adjusting method:

1) Set OUTPUT SELECT switch to the SUPERIMPOSE position.
2) Be sure that the title is displayed..
3) Alternately turn RV106 (EXT.C) and CV103 (C.PHASE) to make each colour luminance point for R, YL, G, CY, B, and MG positioned in the specified box ⊞.

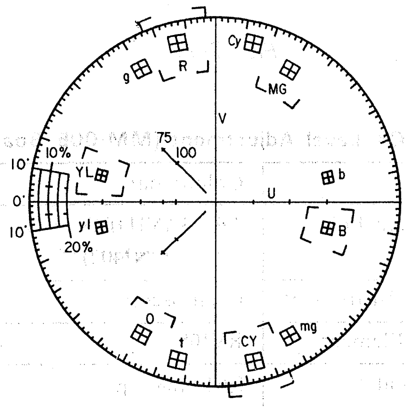


Fig. 7-6.

2. Using the oscilloscope

Signal	Colour bar
Measurement Point	TP233 (VIDEO OUT terminal: CNJ402)*1
Measuring Instrument	Oscilloscope and Monitor TV
Adjusting Element	RV106 (EXT.C) CV103 (C.PHASE)
Specified Value	Yellow Level: 470±10 mVp-p

*1 Be sure that the VIDEO OUT terminal (CNJ402) is terminated with a 75Ω load.

Adjusting method:

1) Set COLOUR SELECT switch on the front panel to the YELLOW position.
2) Adjust with RV106 (EXT.C) so that the chroma level becomes 470±10 mVp-p.

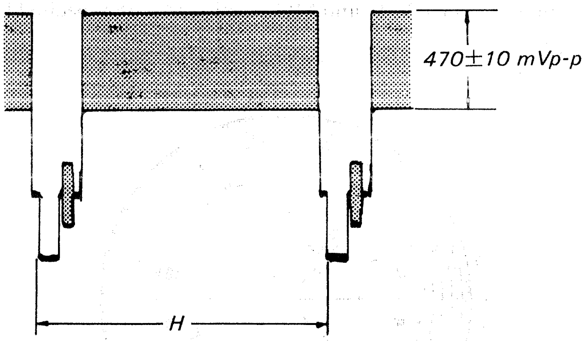
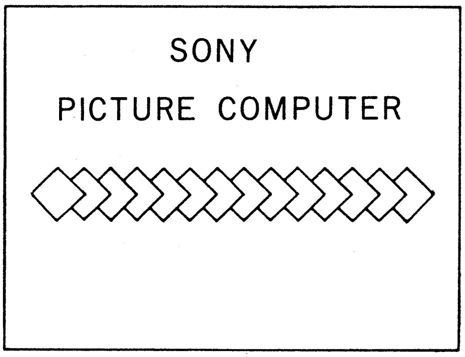


Fig. 7-7.

3) Rotate RV103 while watching the monitor TV screen to adjust for optimum colour darkness (especially the brilliance of the red section).



Adjust for optimum red brilliance.

Fig. 7-8.

7-2-8. Chroma Level Adjustment (2) (MM-005 Board)

1. Using the vectorscope

Signal	No signal
Measurement Point	TP233 (VIDEO OUT terminal: CNJ402)*1
Measuring Instrument	Vectorscope
Adjusting Element	RV105 (INT.C)
Specified Value	Each colour luminance point for R, YL, G, CY, B, and MG must be positioned in the specified box ⊞ .

*1 Be sure that the VIDEO OUT terminal (CNJ402) is terminated with a 75Ω load.

Adjusting method:

1) Set OUTPUT SELECT switch to the SCANNER position.
2) Be sure that the title is displayed.
3) Turn RV105 (INT.C) to make each colour luminance point for R, YL, G, CY, B, and MG positioned in the specifed box ⊞

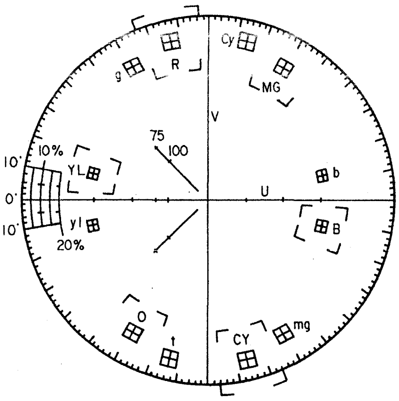


Fig. 7-9.

2. Using the oscilloscope

Signal	Colour bar
Measurement Point	TP233 (VIDEO OUT terminal: CNJ402)*1
Measuring Instrument	Oscilloscope
Adjusting Element	RV105 (INT.C)
specified Value	Yellow Level: 470±20 mVp-p

*1 Be sure that the VIDEO OUT terminal (CNJ402) is terminated with a 75Ω load.

Adjusting method:

1) Set COLOUR SELECT switch on the front panel to YELLOW position.
2) Adjust with RV105 so that the chroma level becomes 470±10 mVp-p.

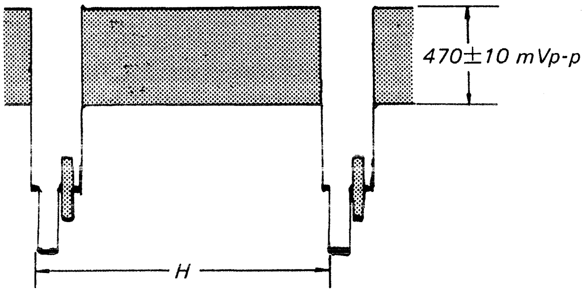


Fig. 7-10.

7-2-9. BLACK Level Adjustment (MM-005 Board)

Signal	Colour bar
Measurement Point	TP233 (VIDEO OUT terminal: CNJ402)*1
Measuring Instrument	Oscilloscope
Adjusting Element	RV108
Specified Value	0±10 mVp-p

*1 Be sure that the VIDEO OUT terminal (CNJ402) is terminated with a 75Ω load.

Adjusting method:

1) Set OUTPUT SELECT switch to the SUPERIMPOSE position.
2) Set COLOUR SELECT switch to the BLACK position.
3) Adjust with RV108 so that the black level becomes 0±10 mVp-p.

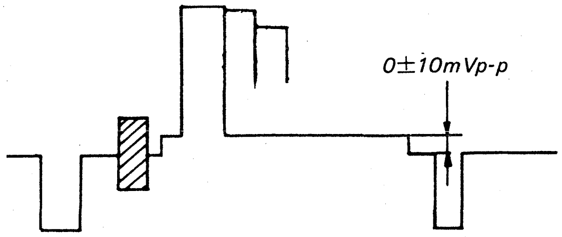


Fig. 7-11.

7-2-10. EXT Cousor Position Adjustment (MM-005 Board)

Signal	Colour bar
Measurement Point	TP223 (VIDEO OUT terminal: CNJ403)
Measuring Instrument	Oscilloscope
Adjusting Element	RV101
Specified Value	32±0.1 μsec

Adjusting method:

1) Set the switches on the front panel to the following positions:
   OUTPUT SELECT button... SUPERIMPOSE
   REVERSE button .... ON
   COLOUR SELECT switch..... white
2) Read a white page (back cover of service manual, etc.) with the scanner.
3) Adjust to 32±0.1 μsec using RV101.

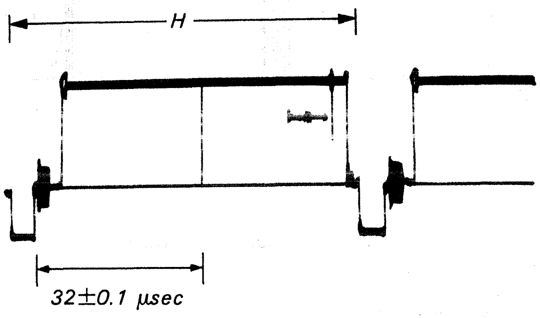


Fig. 7-12.

7-2-11. INT Cursor Position Adjustment (MM-005 Board)

Signal	No signal
Measurement Point	TP223 (VIDEO OUT terminal: CNJ403)
Measuring Instrument	Oscilloscope
Adjusting Element	RV102
Specified Value	32±0.1 μsec

Adjusting method:

1) Set the switches on the front panel to the following positions:
   OUTPUT SELECT button... SCANNER
   COLOUR SELECT switch .... White
2) Read a white page (back cover of service manual, etc.) with the scanner.
3) Adjust to 32±0.1 μsec using RV102.

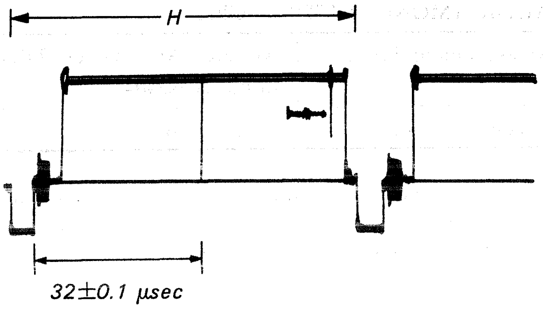


Fig. 7-13.

7-3. AUDIO SYSTEM CHECK

[ ] indicates the measurement point for the R channel.

Signal	1 kHz, -10 dBs (input to both L and R terminals of AUDIO INPUT 1 terminal (CNJ401) simultaneously)
Measuring Instrument	Audio generator, attenuator, audio level meter, oscilloscope
AUDIO OUTPUT 1 Check	
Measurement Point	L (R) terminal of AUDIO OUTPUT 1 (CNJ402) terminal
Specified Value	-10±1.0 dBs
AUDIO OUTPUT 2 Check	
Measurement Point	L (R) terminal of AUDIO OUTPUT 2 (CNJ403) terminal
Specified Value	-10±1.0 dBs
AUDIO (MONO) OUTPUT Check	
Measurement Point	AUDIO (MONO) OUTPUT terminal (CNJ404)
Specified Value	-10±1.0 dBs

Note: The level of all output terminals is muted when the OUTPUT SELECT button on the front panel is set to the SCANNER position.

Connections:

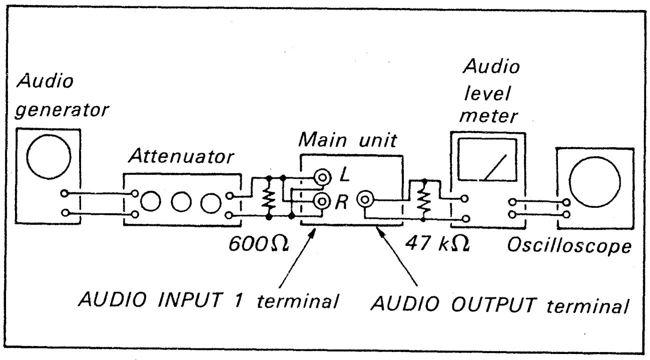

Audio generator
Attenuator
Main unit
L
R
Audio level meter
600Ω
47 kΩ
Oscilloscope
AUDIO INPUT 1 terminal
AUDIO OUTPUT terminal

Fig. 7-14.

Checking method:

1) Confirm that the INPUT SELECT switch on the front panel is set to the INPUT 1 position.
2) Confirm that the OUTPUT SELECT button on the front panel is set to the SUPERIMPOSE position and that all other switches are set to their initial position.
3) Check that the output level of the every output terminal matches the specified value.

7-4. SCANNER SECTION ADJUSTMENT

7-4-1. Motor Speed Adjustment (SS-601 and SC-701 Boards)

Measurement Point	Pin ㉓ of IC701 (SH) on SC-701 board
Measuring Instrument	Oscilloscope, trigger slope:+
Adjusting Element	RV602 on SS-601 board
Specified Value	1.4±0.3 msec

Adjusting method:

1) Press the start button of the scanner.
2) Set by RV602 to 1.4±0.3 msec.

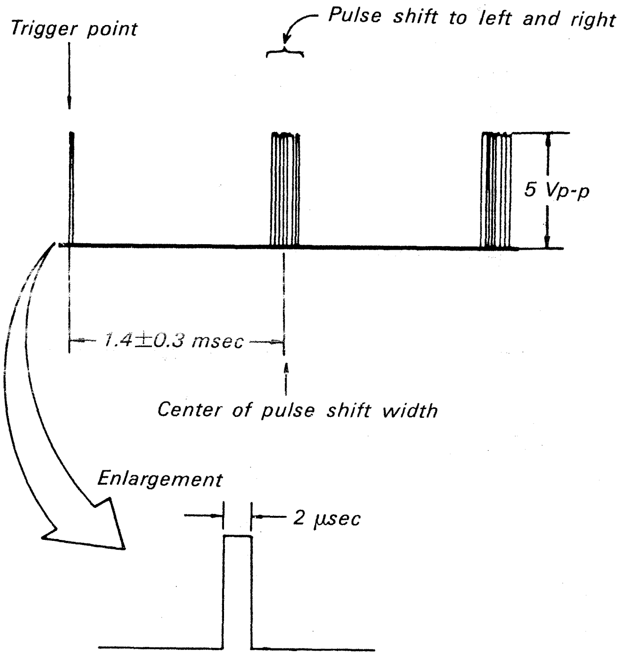

Trigger point
Pulse shift to left and right
5 Vp-p
1.4±0.3 msec
Center of pulse shift width
Enlargement
2 μsec

Fig. 7-15.

7-4-2. CCD Output Waveform Adjustment (SS-601 and SC-701 Boards)

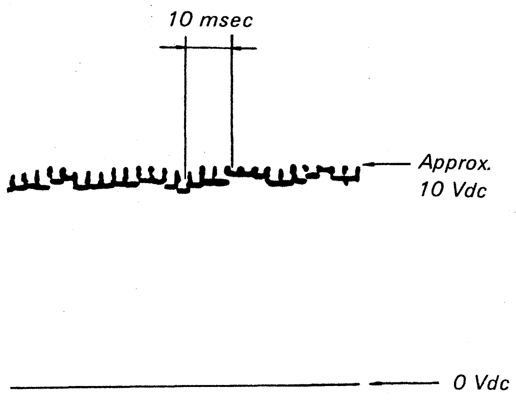
Subject	White paper (back cover of service manual etc.)
Measurement Point	CH1: Pin ⑤ of IC604 on SS-601 board EXT TRIGGER: Pin ㉝ of IC701 (SH) on SC-701 board
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV601 on SS-601 board
Specified Value	Waveform is flat, 10 $^{+0}_{-0.3}$ Vdc

Note: Perform Adjustment with lower cabinet of scanner attached.

Adjusting method:

1) Press the start button of the scanner.
2) Turn RV601 to create the waveform shown in Fig. 7-16 (A).
3) Slowly turn RV601 in the clockwise direction (↻: direction of rotation as seen from key switch attachment panel) and stop at the position where the waveform becomes flat (Fig. 7-16 (B)).
4) Scan a document having a black illustration on a white background (thick lines on good quality paper) at each of the CONTRAST switch positions and confirm that there is no deterioration in picture quality.

(A) Before adjustment



(B) After adjustment

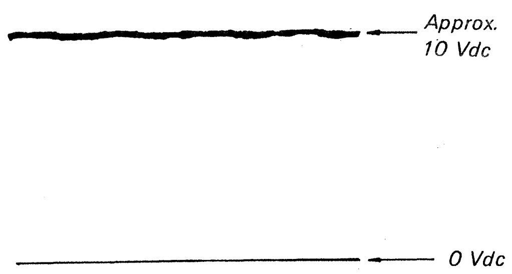
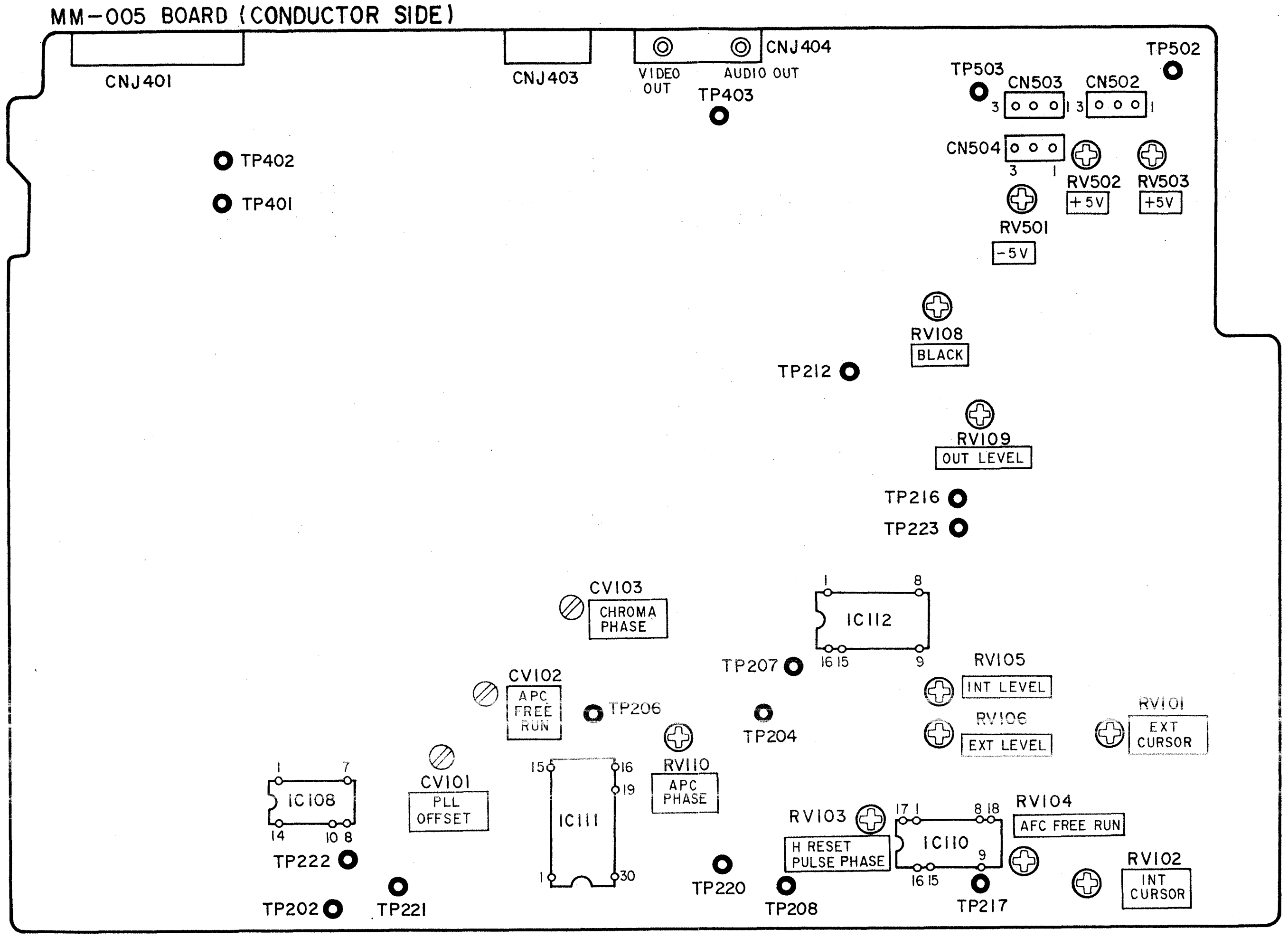


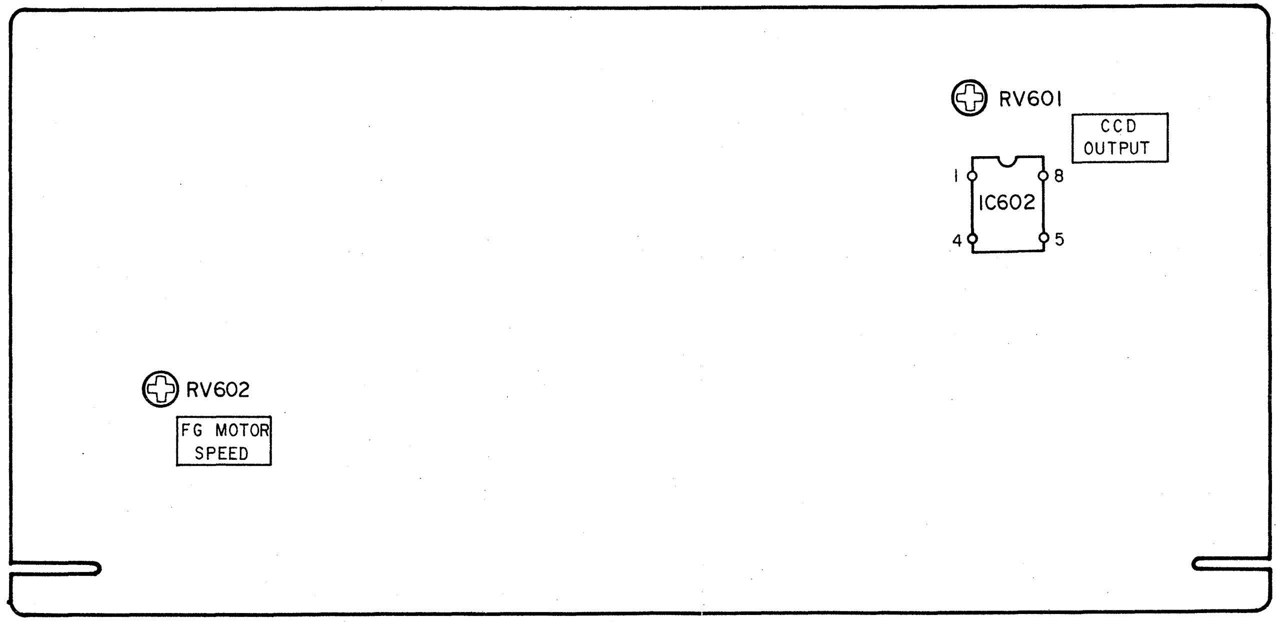
Fig. 7-16.

Adjusting Elements Location

MM-005 BOARD (CONDUCTOR SIDE)


CNJ401
CNJ403
CNJ404
VIDEO OUT
AUDIO OUT
TP403
TP503
CN503
CN502
TP502
TP402
TP401
CN504
RV502
RV503
+5V
+5V
RV501
-5V
RV108
BLACK
TP212
RV109
OUT LEVEL
TP216
TP223
CV103
CHROMA PHASE
IC112
TP207
RV105
INT LEVEL
CV102
APC FREE RUN
TP206
TP204
RV106
EXT LEVEL
RV101
EXT CURSOR
CV101
PLL OFFSET
IC111
RV110
APC PHASE
IC108
TP222
RV103
H RESET PULSE PHASE
IC110
RV104
AFC FREE RUN
RV102
INT CURSOR
TP202
TP221
TP220
TP208
TP217

SS-601 BOARD (CONDUCTOR SIDE)


RV601
CCD OUTPUT
IC602
RV602
FG MOTOR SPEED